American Aviation

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American Aviation
NEWSLETTER

Vol. 15 Number 18 October 1,

Defense Secretary Lovett is expected to determine what size Air Force will be authorized. Joint Chiefs of Staff have been unable to agree and the delay is holding up preparation of the fiscal 1953 budget.

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"Flying crane" helicopter competition has been won by McDonnell Aircraft Corp. which submitted a design using a single three-bladed rotor powered by small jet engines on the blade tips. Navy specifications called for a helicopter capable of lifting 36,000 pounds. It will probably be used to clear carrier decks of crashed planes so that other craft can land. Another use will be to carry pods for short range transportation between ships or from ship to shore. McDonnell has started work on a prototype.

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Manpower problem has hit corporate aircraft owners. Although they have over 1,000 multi-engine aircraft engaged in company work, their pilots aren't considered eligible for any kind of a military deferment.

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Aircraft manufacturers would like to see more rapid clearance of aliens for work in the industry. Clearance is now taking several months, by which time aliens have found other jobs. Number isn't large, but their skills are needed in aircraft work.

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Critical defense housing situation around aircraft plants has been called to attention of Air Coordinating Committee. Housing and schools aren't adequate, which keeps family men (the most stable workers) from trying to move into the areas. ACC has matter under consideration, will probably try to jog FHA and other government agencies.

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Apprentice training is another subject brought to ACC's attention. Apprentices are being drafted before finishing their training. ACC may try to get action on deferments for certain types of apprentices, such as tool makers.

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Final papers still haven't been signed on setting up Defense Air Transportation Administration in Commerce Dept. to handle all mobilization matters. Main reason is that appropriation for DATA hasn't been cleared yet.

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An investigation of the entire large irregular air carrier industry, involving 63 non-scheduled airlines, has been ordered by the Civil Aeronautics Board. First full proceeding on the non-sked problem as a whole since 1946, it will include all matters relating to non-scheduled transportation and whether there is a need for such transportation supplemental to operations of certificated scheduled lines.

Basically, here is what CAB will probe:

1. Is there a need for non-sked services supplemental to certificated operations?
2. If answer above is affirmative, what type or types of supplemental services would best be adapted to meeting required needs?
3. What would be the effect of such supplemental service and are they in the public interest?
4. Is CAB empowered under the Act, as now written to authorize by certificate or exemption of such supplemental services?
5. Should such supplemental services be authorized by permanent or temporary certificates, exemptions or regulations?

Included in 63 parties are 17 non-skeds previously granted two-year individual exemptions as "approved" carriers. For duration of investigation, any numerical limitations on number of flights are lifted, but all non-skeds will be required to conform with existing regulations.

In significant follow-up to investigation order, CAB revoked letter of registration of Air Transport Associates, a non-sked headed by Amos E. Heacock, an outspoken opponent of CAB policy on the controversial non-sked question.

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Federal Mediators were planning new steps in the three-week-old strike of 10,000 UAW-CIO workers at Douglas Aircraft Co. in Long Beach as a conference between Donald Douglas, president, and John W. Livingston, UAW vice president, ended "without expectation of a reasonably early settlement." Livingston then ordered strike moves to be taken against the Douglas plant in Tulsa.

Douglas officials, meanwhile, started negotiations with the IAM on new contracts for its employees at El Segundo and Santa Monica.

Across the country, 2,000 members of the IAM-AFL walked off their jobs at the Pratt & Whitney Aircraft plant in Southington, Conn., in a dispute over wage increases, an arbitration clause and other benefits.

•

Pan American World Airways last week threatened a break with the International Air Transport Association over the controversial trans-Atlantic tourist problem. Decision of PAA to start the low-cost services "within or outside" the framework of IATA next year, came after a special IATA sub-committee recently closed a two-day London meeting without definite action on the problem.

Sub-committee's decision, in effect, was that the tourist question was too complex to be decided by mail vote of member airlines and accordingly should be handled at the Nov. 20 meeting of IATA traffic conferences 1 and 2 in Nice, France.

Last May, these same conferences, meeting in Bermuda, agreed to an Oct. 1, 1952 starting date for a trans-Atlantic coach operation to be conducted on a limited basis. Civil Aeronautics Board rejected the proposal, urging an earlier starting date and fewer restrictions. If CAB continues to support it, Pan Am will go it alone, if necessary, next year, company said.

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Senate has passed S.436, the Air Mail Subsidy Separation Act of 1951, but House action is not likely at this session of Congress. Bill, as approved, closely followed the recommendations of the Senate Interstate and Foreign Commerce Committee.

Provisions: Payments for air mail will continue to be made by the Post Office Department, with ton-mile rates varying according to the classification of the carrier. Five classes were set up, carriers in each class receiving 45c, 60c, 75c, 90c or $1.80 a ton-mile with a 15-pound minimum weight provision included. Any subsidies will be determined by and paid by the CAB, which will receive funds for that purpose. CAB will also determine which classification each carrier falls under and will be able to adjust the mail rates as needed. Provisions would become effective for domestic carriers on July 1, 1952 and for international carriers one year later.

Approved amendments: Subsidy contracts between the U. S. and international carriers may run only for five years and those with local service airlines for three years. Subsidies will also be cut off to any airline which offers free rides to Congressmen or governmental personnel. Senate also rejected a move to permit subsidy payment to airlines which do not carry mail.

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MANUFACTURING

Manufacturers may now order up to 40% of their quarterly allotments of steel, copper or aluminum to even out production schedules. NPA has authorized the jump from 35% in any one month.

Recommendations for rapid tax write-off certificates for prime aircraft manufacturers are now almost completed as far as NPA's Aircraft Division is concerned. The Division has started to concentrate certificates of necessity for aircraft suppliers.

Contractors' representatives entering Air Materiel Command headquarters at Wright-Patterson AFB, Dayton, must sign a statement that they will not offer gifts to AMC employes. Those refusing to do so are barred.

Some 342 certificates of necessity for the aircraft industry were approved by DPA as of Aug. 18. The agency also had granted 12 rapid tax certificates for guided missile builders by that date. The 342 certificates represent a total investment of $430,683,000, of which DPA allowed $306,885,000, or 71%, to be written off in five years. Guided missile builders represented by the 12 approvals will spend $10,227,000, of which $8,171,000, or 79.9% will be quickly amortized.

Two of 12 members of the Wage Stabilization Board's Review and Appeals Committee come from the aviation industry. The tripartite committee (with 4 representatives from labor, industry and the public) will include Millard Stone, director of industrial relations for Bendix Aviation Corp. and Albert E. Potteiger, industrial relations specialist for Aircraft Industries Association, as industry members.

Douglas commercial sales of DC-6A and 6B equipment mounted to 141 as a result of American Airlines' decision to buy 30 more of the planes. Grand total of all types of DC-6's is now 315.

New flight station at Palmdale, Calif., airport will be opened this month by Lockheed. New $400,000 test center will handle delivery flights of F-80's that have been overhauled by Lockheed Aircraft Service at first and later delivery flights of T-33 trainers will be transferred there. All test work will eventually be switched from San Fernando Valley Airport at Van Nuys to Palmdale. Sometime late in 1953 or early in 1954, Lockheed will start final assembly work on the F-94 and T-33 at the new $12,615,000 plant recently authorized at the base by the USAF.

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PLANES AND EQUIPMENT

An anti-fouling spark plug, designed and built by Boeing Airplane Co., is now undergoing tests in a Pratt & Whitney R-4360 engine. It features electrodes recessed with the body where they are reportedly not subject to the heat, impact or erosion normally suffered by spark plugs. In tests in an R-2800 engine, the plug lasted 70 hours as against a maximum of 22 hours for standard plugs, Boeing claims.

Production of the Vickers Valiant 600-mph jet bomber in the U. S. is being discussed by USAF officials and George R. Edwards, chief designer of Vickers-Armstrong, Ltd., who is now in this country.

Newer Banshee, designated F2H-3, is now in production for the Navy by McDonnell Aircraft Corp. The new model has improved rader, permitting all weather flights, greater fuel capacity and more powerful armament than earlier Banshees.

DC-3's and Lockheed Lodestars would be kept in scheduled airline service indefinitely under the terms of a proposed new Civil Air Regulation. In the past CAA set tentative dead-lines beyond which the two types would be considered unsuitable for scheduled passenger service. Latest date was Dec. 31, 1953.

Navy's turbo-prop prototypes will have 5,500 horsepower Pratt & Whitney T-34's in the Lockheed R70 Super Constellations and Allison 3,750 horsepower T-38's in the Douglas R6D's. The T-38 is rated at 2,750 horsepower now but is expected to be improved by installation time.

Rearward facing seats are to be installed in the Navy's new R6D-1 Liftmasters. All future Military Air Transport Service transports will be fitted with rearward seats, according to present plans.

A completely different version of the F-86 has

(*Continued opposite page* 56)

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Official Airline Guide: Monthly publication of airline schedules and fares. Subscriptions: U. S. A. and countries belonging to the Pan American Postal Union, including Spain and the Philippines, $9.00 one year, Canada, $9.50. All other countries, $11.00. Published from editorial offices at 139 North Clark St., Chicago 2, Ill. State 2-2154. C. N. Johnson, managing editor.

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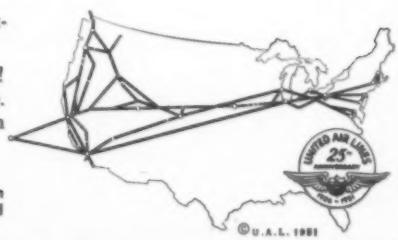

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When & Where

Oct. 2-4—Aircraft Spark Plug and Ignition Conference, Hotel Secor, Toledo, Ohio.

Oct. 3-6—Society of Automotive Engineers, Aeronautic, Aircraft Production Forum and Aircraft Engineering Display, Biltmore Hotel, Los Angeles.

Oct. 4-6—Southeastern States Airport Operators Council, Manteo, N. C.

Oct. 8-10—Air Transportation Committee, American Institute Electrical Engineers, Los Angeles.

Oct. 11-12—Airport Management and Opns. 1951 Conf., U. of Okla., Norman, Okla.

Oct. 11-13—Air Reserve Assn. Annual Meeting, Knickerbocker Hotel, Chicago.

Oct. 13—Los Angeles Air Fair, Los Angeles Intl. Airport, Calif.

Oct. 15-19—Air Line Pilots Assn. International, Executive Board Meeting, Chicago.

Oct. 15-18—Society for Non-Destructive Testing, 11th annual meeting, with symposium on jet engine part inspection, Hotel Detroiter, Detroit.

Oct. 16-17—Fourth Annual New York State Conf. on Airport Development and Operation, Onondaga Hotel, Syracuse, N. Y.

Oct. 18-20—Sixth Annual Arizona Aviation Conference, Phoenix.

Oct. 24-27—NASAO Annual Meeting, Arizona Inn, Tucson.

Oct. 29-31—Society of Automotive Engineers, Transportation Meeting, Knickerbocker Hotel, Chicago.

Nov. 7—Wings Club annual dinner, Waldorf Astoria Hotel, New York.

Nov. 13-16—National Aviation Trades Assn. 12th Ann. Conv., Hotel Texas, Fort Worth.

Nov. 28-30—Aviation Distributors & Manufacturers Assn. Annual Winter Mtg., Waldorf Astoria Hotel, New York.

Dec. 4-5—Transport Aircraft Hydraulic Accessory & System Conference, Sheraton Hotel, Detroit.

Dec. 17—15th Wright Brothers Lecture, U. S. Chamber of Commerce Auditorium, Washington, D. C.

Dec. 17—Wright Brothers Memorial Dinner, Statler Hotel, Washington, D. C.

International

Oct. 4—Royal Aero. Society, 7th British Commonwealth & Empire Lecture, London.

Oct. 29-30—Air Industries and Transport Assn. of Canada, Annual General Meeting, Seigniory Club, Montebello, Quebec.

Editorial

Worth Copying

WE had never taken the opportunity before this year to attend the flying display and exhibition of the Society of British Aircraft Constructors at Farnborough near London.

It is well worth while. As an aviation trade show, it is without question tops in the world. It is well-organized, well-operated, and always designed to provide a few sensations.

by W. W. P.

This year the four-jet bomber, the Valiant, was an outstanding feature, and all those who were at close hand when the Hawker 1067 whooshed across the field at terrific speed about fifty feet off the ground got the thrill of the jet age.

Visitors from overseas are rather well surfeited with the frequently desperate claims by the British to be first in the air but, after all, Farnborough *is* a trade show and the British can be excused for hawking their wares with extravagance. The fact remains that the British have been consistent in designing and developing some very excellent airplanes and engines, and indeed are often first in this respect. If they could only learn to produce on the scale that we do in the U. S., theirs would indeed be a formidable industry.

We have suggested earlier on this page that many features of the annual Farnborough show are worth adopting in the U. S. and perhaps the National Air Foundation which sponsors the annual National Air Races might well be the vehicle. But now we understand that the Society of Automotive Engineers in conjunction with the New York Port Authority is moving ahead on plans for an annual spring event at Idlewild. This could lead to something big.

One of the best features of Farnborough is the separation of the display into two parts. On four days the show is open only to trade and press and other invited guests. On two additional days the public is invited. The flying exhibition is the same on all six days. The static exhibition indoors is very well attended. The ability of the trade and press to inspect airplanes is a valuable asset. Let's have something similar in the U. S.

Tourist Fares

AT this writing the next move for establishing low tourist fares on the North Atlantic is not known but sentiment at the annual meeting of the International Air Transport Association in London in September was quite divided. All operators know that tourist fares are coming. It is all a question of timing.

The Civil Aeronautics Board of the U. S. has injected itself into international air transport matters to a far greater extent than any other government. In fact it holds a whip hand over the policies of some 56 airlines on the four continents comprising two large traffic conferences—North and South America, Europe and Africa. By reason of participation of U. S. flag carriers, CAB has a veto power on IATA resolutions which seriously affects the policies of airlines operating wholly outside the U. S. It is not at all certain that the CAB members and the CAB staff fully appreciate this. It goes without saying that the CAB is not at all popular abroad.

There is an important consideration in tourist fares which may be overlooked in the U. S. This is the matter of equipment. Most airlines are short of airplanes. In a tourist fare race, they'll be left behind. The CAB must make up its mind whether it wants to force some of the European carriers, already losing money, into the background in trans-Atlantic traffic or whether it wants to give many airlines abroad an opportunity to earn dollars for their various economies. If the CAB wants the U. S. carriers to move ahead rapidly on tourist fares, and thus grasp the bulk of the traffic, it has the power to do so.

Since low fares are in the public interest, the CAB must now or later reach a decision whether it wants to think chiefly of the U. S. traveling public and chiefly of U. S. operators, or whether it wants to strike a balance and give the European operators a chance to exist. Again, it is a matter of timing. From the standpoint of many operators, 1953 would be a far better starting point for tourist fares than 1952. Airplane conversions take time, especially outside the U. S. There are still a lot of unknown factors in trans-Atlantic air travel, since it is only five years old in any volume, and full consideration of all factors and problems might be preferable.

Everybody wants low fares. Perhaps the operators as a whole need to be prodded into action which they might not otherwise take. But it is still a matter of judicious timing and the CAB is prone to look only at one side of the problem. Unless, of course, it is the U. S. aim to drive some of the European operators into oblivion.

BEA Tells All

CREDIT for the biggest and most intelligent annual airline report must go to British European Airways, which has just issued a 94-page booklet, replete with detailed statistics and charts for the year ended March 31, 1951. Peter Masefield, the young chief executive officer of BEA, believes in telling everything about the company, good and bad, honestly and frankly. This is an admirable policy. The report shows vividly why some routes lose money and why some segments may never operate at a genuine year-round profit because they are internal public policy services similar to the U. S. local lines.

BEA carried a million passengers last year and is seventh largest in the world in this respect. It has several excellent new types of equipment coming. It has reduced a fantastic annual loss to a much more rational one and makes money during the summer season. It can see its way clear to eventual over-all profit.

American carriers should obtain copies of the BEA report. If they had been issuing such reports annually there wouldn't be so much ignorance in Congress and government as to airline economics.

Letters

Wrong Company

To the Editor:

In your column entitled "Extra Section" in the September 3rd issue of AMERICAN AVIATION you had the following information:

"Goodyear's Aviation Products Division has come up with an interesting deal with its 'Trace' dye. 'Trace' is added to regular hydraulic fluid, two ounces to the gallon, meeting either AN-0-366 or AC-3580 specifications. In the event of a leak 'Trace' leaves a readily distinguishable red film which remains until removed. It should be a boon to trouble-shooting leaking hydraulic systems. Goodyear has recently completed extensive tests in the Convair Liner with 'Trace' and found it perfectly compatible with other system components. Even with heavy concentrations of the dye, five ounces per gallon, no corrosion or other detrimental effects were observed after keeping units submerged in 'Trace' for 56 days."

"Trace" dye is not a Goodyear Aviation Products Division development, as your article states, but rather is a discovery of the Highside Chemical Company of Clifton, New Jersey. Goodyear has run some tests using this "Trace" dye and found that it is not harmful to our airplane single-disc brakes. The results of these tests were given to Consolidated Vultee. Perhaps, it was because of these tests that Goodyear ran that the information you received for your article was confusing. We are sending a copy of this letter to the Highside Chemical Company, and we would appreciate it very much if you would straighten the matter out to everyone's satisfaction in the near future.

We can understand how easily an error of this type can be made; but it does embarrass us a little, because we are getting inquiries from various companies on "Trace" dye.

K. E. GEMPLER
The Goodyear Tire & Rubber Co., Inc.
Akron 16, Ohio

(Information regarding "Trace" was taken from a service bulletin put out by Convair, crediting Goodyear with the product. Our thanks to Goodyear for the additional information.—Ed.)

Super Connie Windows

To The Editor:

I read with considerable interest a small item in a recent AMERICAN AVIATION wherein the windows on the Super Constellation are described as follows:

"Largest windows in any U. S. transport are claimed for the Lockheed 1049 Super Constellation."

The article points out that the windows are 16" x 18", which by my slide rule amounts to 288 square inches of window area.

When Northwest got the Boeing Stratocruisers we were the only purchaser of the rectangular windows on both the main deck and the lower lounge. These windows on the main deck measure by specification 14½" x 20". Again, according to my calculations, this adds up to 290 square inches of window area. I personally do not know whether the rounded corners detract from one or both of these side measurements. There also remains a question as to whether a long window is better than a high window as far as the airplane passenger is concerned.

DON O. BENSON
Northwest Airlines, Inc.

Pleasant Surprise

To The Editor:

It was certainly a pleasant surprise to pick up my copy of the Sept. 3rd issue of AMERICAN AVIATION and find a very excellent story on our Cargo Ready-Load.

In spite of being away from commercial air transportation to some degree, I would feel lost without continuing to receive your excellent publication.

BEN OAKES
Crimsco Manufacturing Division,
Truog-Nichols, Inc.
Kansas City, Mo.

Booklets

Converting to Military Production, a four-page pamphlet issued by National Production Authority's Office of Small Business. Available from Printing Services, Department of Commerce, Washington 25, D. C., or any Commerce field office.

Weed Control by Helicopter, illustrated brochure published by Helicopter Services of California, One Montgomery St., San Francisco.

The Human Equation in Aircraft Accidents, and **Accidents Attributed to Private Pilots**, two new Civil Aeronautics Administration studies available from CAA district and regional offices.

Revised listing of commercial aircraft operators engaged in agricultural or industrial activities has been issued by CAA. Available from General Flight Branch, Flight Operations Division, CAA, Washington 25, D. C.

OBITUARY

C. E. Faulk

On August 31, C. E. Faulk, chairman of the board of Delta Air Lines, died at his home in Monroe, La., at the age of 73, after a long and distinguished career as newspaper publisher, financier, banker and airline executive. President of Delta Air Lines from 1935 until 1945, when he was elected board chairman, he was also a director of the Central Savings Bank & Trust Co. of Monroe and had owned the Monroe *News Star* Publishing Company from 1892 to 1930. He owned and published the Longview, Texas, *News and Journal* from 1931-1935.

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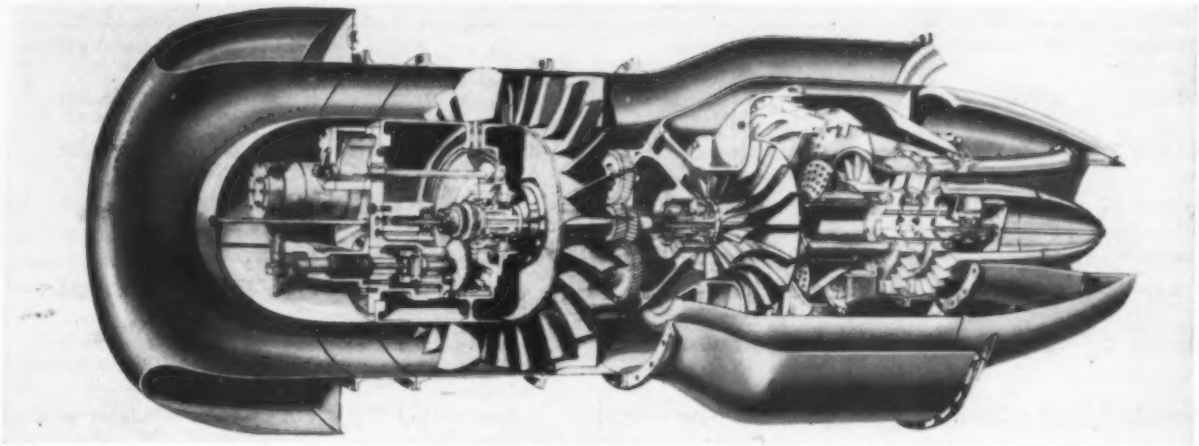
VOLUME 15 NUMBER 18



THE ASPIN II is a ducted-fan turbine getting 75% of its thrust from the propeller-like fan driven by the turbine.

French Turbines Set for U. S. Production

Continental to start work within six months on Turbomeca engines.

By William D. Perreault

DEVELOPMENTS at Continental Aviation and Engineering Corp. to promote the sale and to organize manufacturing facilities for the series of nine Turbomeca turbine engines it has been licensed to build (American Aviation, Sept. 17) are moving at a fast pace.

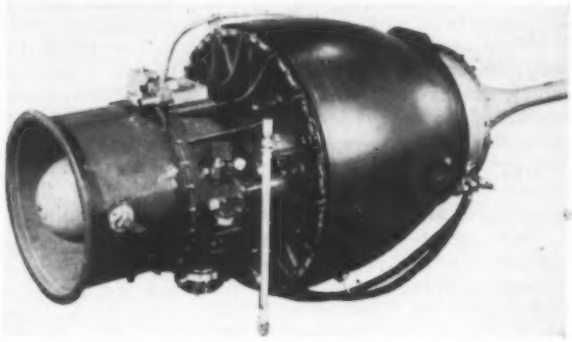
Initial U. S. production is planned within six months. Among the developments:

- **Importation of four Turbomeca** turbine engines from France for demonstration and test purposes.
- **Assignment of two engines,** the Marbore and Palouste, to Wright Field for testing, arrangements for this now being made.
- **Testing of still another** of the engines, presumably the Aspin II, in CAEC's own test cells in Detroit.
- **Accelerated discussions** with several U. S. helicopter manufacturers relative to possible applications of the Palouste and Artouste engines.
- **Programming of existing and planned** production facilities to handle the projected work load.

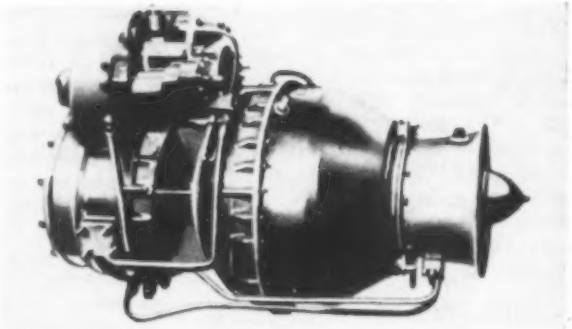
Continental's licensing agreement with France's Societe Turbomeca brings it to the forefront in the small turbine engine field, a field which has hardly been touched in this country. In the nine-engine group are straight turbojet engines, shaft turbines (very similar to turboprop engines), air generators and two ducted fans.

Continental Aviation and Engineering Corp., a subsidiary (51% control) of Continental Motors Corp., will handle manufacture of the gas turbines that are finally selected for active production. CAEC is well qualified for this task. Since the end of World War II this company has designed a series of gas turbines ranging from 50 to 450 horsepower.

The series of turbines was developed in CAEC's role as



MOST POWERFUL of the Turbomecas, the Marbore II is rated at 880 pounds thrust.



ARTOUSTE I, a shaft turbine, uses turbine power for accessory or helicopter rotor drive. Artouste II is rated at 400 pounds thrust. They would be useful to drive accessory equipment on large bombers and transports.

Turbomeca Engine Specifications

Name	Type	Takeoff Rating Static S. L.	Take-off S. F. C.	Continuous Rating	Continuous S. F. C.	Engine Weight (Lbs.)	Overall Diameter (Inches)	Length (Inches)	Possible Application
Pimedon	Air Generator			1.3 lbs/sec at 50 psia		160	NA	NA	Aircraft Accessory Drives
Palouste	Air Generator			2.3 lbs/sec at 50 psia		170	41.73	18.5	Helicopters, Aircraft Accessory Drives
Artouste I	Shaft Turbine	280 hp	.95	250 hp	1.02	185	20.5	30.5	Helicopters, Aircraft Accessory Drives
Artouste II	Shaft Turbine	400 hp	1.00 Est.	325 hp	1.08 Est.	200	NA	NA	Helicopters, Aircraft Accessory Drives
Pimene	Jet	242 lbs	1.16	200 lbs	1.06	118	17.15	42.4	
Palas	Jet	330 lbs	1.20	264 lbs	1.15	137	17.15	42.4	Target Planes, Guided Missiles
Marbore 11	Jet	880 lbs	1.09	720 lbs	1.07	275	22.3	54.4	Target Planes, Jet Advanced Trainers, Guided Missiles
Aspin I	Ducted Fan	460 lbs	.685	350 lbs	.61	278	22.8	47.6	Light Airplanes or Convertiplanes
Aspin II	Ducted Fan	725 lbs	.67	600 lbs	.566	300	NA	NA	Light Airplanes or Convertiplanes

NA-Not available

the engineering development group for CMC, the role in which it has acted as the design team for CMC's helicopter engine (scheduled to power the Piasecki HUP-1), a series of tank engines, the recently announced group of air-cooled engines for auxiliary power application.

Military interest in the Turbomeca engine series, for which CMC was then negotiating manufacturing rights, caused the development group to divert its attention toward U. S. applications of the promising French engines. While completion of the licensing agreement with the Societe Turbomeca will overshadow CAEC's own turbine engine designs for some time, the company will continue to explore all possibilities.

Employs 300

Today Continental Aviation and Engineering Corp. consists of some 300 employes (compared to 1,500 in Continental Motors), 50% of them engineers. The company is located at 1500 Algonquin Ave., Detroit. It has no manufacturing facilities of its own, shares space in Continental Motors' factory for prototype work on new designs. This means that Turbomeca production will require additional factory space.

Continental's turbine engine program will be under the direction of Arthur W. Wild, vice president and general manager of the subsidiary company, and Carl F. Bachle, vice president for research.

The Aspin II, one of the most attractive engines in the Turbomeca series, will be the first ducted fan turbine to be put in production in the U. S., providing the market develops as anticipated. The ducted fan engine (see drawing) uses a large axial type fan, resembling an over-sized compressor stage, to accelerate the flow of air through the engine housing.

This is accomplished in such a manner that approximately 75% of the output thrust is generated by the fan, only 25% by hot exhaust gases discharged out the turbine. The blades of the fan are contained in an annular type passage which handles a large volume of air passing through the engine case but never actually entering into the combustion processes.

The Aspin II, successor to the Aspin I, is rated at 794 pounds static sea level thrust. Operational advantage of the ducted fan over regular turbojets and turboprops is emphasized by the specific fuel consumption, .67 pounds per pound of thrust per hour, well below turboprops and about half that of turbojet consumption. Continental anticipates that the Aspin will be particularly well suited to use in light airplanes or convertiplanes.

The most powerful engine in the Turbomeca group, the Marbore II is a straight jet rated at 880 pounds static thrust. It is slated for a role as a high powered, versatile booster for assisted take offs and similar operations competitive with Aerojet Jato.

A reliable jet engine capable of providing assisted take-offs with a minimum weight penalty, and compactness of size which will not penalize aerodynamic performance, would appear to offer real advantages. It could be turned on or off at will, operate for indefinite periods of time and provide repeat performance without "refilling."

Continental also pictures the Marbore II as a powerplant for high speed (450-500 m.p.h.) target planes, advanced jet trainers and guided missiles.

Weighs 170 Lbs.

In its own class, an air generator, the Palouste offers promising possibilities. Weighing 170 pounds, this turbine produces 1830 cubic feet of free air per minute at 50 pounds per square inch pressure.

It is suitable for use as a source of pneumatic power for operating the starters of large turbine engines, as a portable heater and in similar applications. Mounted in a helicopter the output of the Palouste can be ducted through the rotor blades and out the rotor tips for jet helicopter operation.

The so-called shaft turbines, such as the Artouste I and II, are very much like turboprop engines in operation except that they are used to drive accessory equipment. This type unit would be particularly useful on large bombers and transport equipment.

Army Top Buyer in Helicopter Market

Plans to spend additional half billion would up military orders from 2,900 to 4,000.

By James J. Haggerty

THE helicopter, not too long ago regarded as an aerodynamic freak with limited military application, has suddenly become one of the most important aircraft types in military use, and the wide variety of newly-discovered ways of employing rotary wing craft has brought on a procurement emphasis greater in proportion to the pre-Korea rate than any other type of military aircraft.

In the fiscal year 1950, which ended just as the Korean situation developed, the combined three military services bought a total of only 105 helicopters. But in the combined fiscal years 1951 and 1952, the past and current years, the services have programmed a total of more than 2,900 helicopters of several types, roughly seven times the total number of helicopters built during World War II.

In fiscal 1952 (which runs until June 30, 1953) the services will spend more than $205,000,000 on helicopters. This will buy about 825 planes.

But that's only a starter. The Army, heavily accenting procurement of transport helicopters for assault work, has a requirement for another $500,000,000 worth of large transport types. This money is being held back pending evaluation of the plane type the Army plans to buy, which has not yet flown.

Should this evaluation be concluded during fiscal 1952 and the extra $500,000,000 approved for helicopter purchases, it would bring the two-year procurement program up to something in the neighborhood of 4,000 planes.

Probably the H-21

The plane type for which the additional $500,000,000 is to be spent was not positively identified, but recent Army testimony before the Senate Appropriations Committee indicated it would probably be the Piasecki H-21, a large, tandem-rotor transport helicopter capable of carrying about 20 troops.

There is also a possibility that the money will be spent on two or more types of transport helicopters, in order to expedite deliveries, and some of it may have to go into construction of new plants, for the comparatively new helicopter industry has nothing near the floor space to handle a production program of the scope the services are calling for.

The list of military uses for the helicopter has now become a long one. In the Army, the major use will be assault by troop-carrying helicopters. Fifty 'copters of the H-21 size can move 1,000 armed and battle-ready troops from one combat field to a new trouble area in a matter of minutes, giving the Army a mobility it has never had before.

Many Uses

The Army also uses rotary wing craft for observation work, for liaison work, and a variety of odd jobs like inspection of camouflaged areas, wire laying, aerial control of troop columns and front line photography. The Marine Corps has much the same uses for the helicopter.

The Navy has found some additional uses, the most important being anti-submarine warfare, where the helicopter has most of the advantages of the blimp yet has a greater maneuverability and consequently a better chance of surviving attack from a surfacing sub.

The Navy has also found the 'copter invaluable for hovering over carriers during take-off of fighter aircraft to rescue a pilot who might be forced to ditch. The Air Force's chief employment of the helicopter is for rescue work. And all the services are constantly finding new ways to use rotary wing planes.

No De-Emphasis

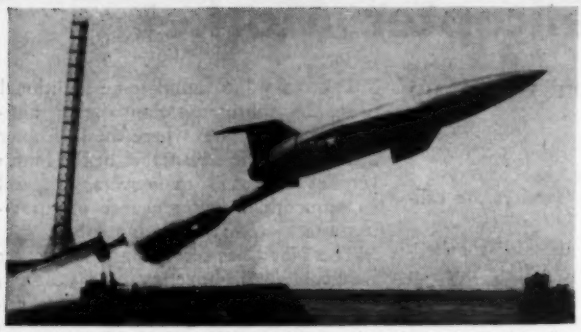
The fiscal 1951 (ended June 30, 1951) helicopter procurement program was larger than that planned for the current year. The combined services ordered well over 2,000 eggbeaters in 1951, compared with approximately 825 planned for the current year. This discrepancy does not indicate a drop in helicopter emphasis; it is explained by two factors:

Helicopters on Order

	Model	Capacity	HP	USAF	USA	USCG	USMC	USN
Bell	47D	2	178	H-13B	H-13B	HTL-3	HTL-3	HTL-3
	$47D_1$	3	200	H-13D	H-13D	HTL-4	HTL-4	HTL-4
	54	2	250	XH-15				
	48	8-10	600	H-12				
	61	NA	NA					XHSL
Hiller	360	3	178					
	H23A	3	178	H23A	H23A			HTE-1
	HTE-1	3	178					
Hughes	XH-17	NA	NA	XH-17				
Kaman	K-225	3	225					K-225
	HTK	3	245	YH-22		K-225		HTK-1
	HOK	5	525					HOK-1
McDonnell	XH-20	1	RamJet					
	XHJD	10	900	XH-20				XHJD-1
	XHRH-1	NA	NA					XHRH-1
Piasecki	HRP-1	10	600			HRP-1	HRP-1	HRP-1
	HRP-2	10	600				HRP-2	HRP-2
	HUP-1	5-7	525		H-25			HUP-1
	H-21	16-20	1425	H-21				
	XH-16	25-35	1625-each (2 engines)	XH-16				
Sikorsky	S-51	4	450	H-5		HO3S	HO3S	HO3S
	S-52	3-4	245	H-18	H-18		HO5S	HO5S
	S-55	10-12	600	H-19	H-19	HO4S	HRS	HO4S

NA—Not Available

THESE ARE THE HELICOPTERS in the armed forces 1951-52 procurement program (including experimental types) and their various service designations.



USAF'S NEW PILOTLESS BOMBER, the Martin B-61 Matador, is shown on left just after take-off. Launching device is shown at right. Designed to carry an atomic warhead against tactical targets, including troop concentrations, the B-61 gets its initial thrust from a rocket engine, then continues on power supplied by an Allison J-35. It is going into mass production at Martin's Baltimore plant. AF has established its first pilotless light bomber squadron at the Missile Test Center, Cocoa, Fla., to learn to operate the B-61.

• **The major portion** of the Army's requirements has been temporarily shelved pending further evaluation.

• **The services had to place orders** for the largest part of their requirements last year when the big helicopter expansion program first got under way, in order to get the production lines built for mass production.

Due largely to the emphasis on assault transport operations, the Army is now the largest market for helicopter sales. The Army has announced plans to set up five transport helicopter companies for combat assault work, but the scope of the procurement program hints at far greater plans. In addition, heavy procurement emphasis was placed on the smaller types of windmill, for observation, liaison, training, etc., last year. In fiscal 1951, the Army ordered a total of more than 1,050 helicopters out of the year's total procurement (for all three services) of more than 2,000. The Navy, ordering about 850 rotary wing planes, was second, while the Air Force brought up the rear.

What They'll Buy:

Under the program contained in the current year's budget estimates, the Navy will take over the top spot, ordering about 500, whereas the Army is now asking money for only 287. But later Army orders will probably restore the Army to the No. 1 position. The Air Force 1952 requirement calls for only 40 large helicopters for air rescue work. The Navy plans to spend $157,000,000, the Army about $30,000,000 (excluding the large transport helicopter program coming later) and the Air Force $20,000,000.

An examination of last year's procurement program gives an indication of where the emphasis lies as regards the types procured:

Army

• **For observation and utility,** about 550 Bell H-13D two-place single-rotor helicopters.

• **For liaison, training,** etc., about 400 Hiller H-23's (two-three place single rotor, military version of Hiller 360).

• **For transport,** about 70 Sikorsky H-19's (12 places, single three-bladed rotor) and about 30 Piasecki H-21's (16-20 places, two rotors in tandem).

Navy

• **For utility,** about 250 Piasecki HUP-2's (seven places, two rotors in tandem, basically a smaller version of the H-21).

• **For transport** (Marines), about 200 Sikorsky HRS-1 and HRS-2's (same as Army H-19's).

• **For anti-submarine and reconnaissance duty,** about 125 of the Bell HSL-1 (a new large, twin-rotor plane, recent winner of a Navy design competition) and 125 divided among three other types: the Sikorsky H04S-3 (anti-sub version of the HRS, fitted with electronic equipment); the Sikorsky H05S-1, (a three-four place single rotor ship); and the Kaman HOK-1 (five places, two intermeshing, contra-rotating rotors).

• **For training,** about 150 planes of three types: the Bell HTL-4 (Navy version of the H-13D, above); the Kaman HTK-1 (three places, two intermeshing rotors); and the Hiller HTE-1 (similar to Army H-23).

Air Force

• **For rescue,** about 60 Piasecki H-21's and 125 Sikorsky M-19's (some of the latter, though bought under an Air Force order, were turned over to the Army.)

All three services also bought limited quantities of a number of experimental types. In addition, the Coast Guard, although its aircraft procurement program is necessarily small, has also become 'copter conscious. The CG ordered 19 helicopters last year: eight Sikorsky H05S-1G's, seven H04S-1G's and three Bell HTL-4's.

Helicopter procurement during fiscal 1952 will follow the 1951 pattern, unless the big $500,000,000 Army transport program comes into the picture. Under the money allocations in the current budget estimates, Army will buy 52 H-21's and 25 H-19's for transport use and the remainder of its programmed 287 helicopters will be H-13's and H-23's.

The Navy will buy generally the same types as last year, except for one new model, the Sikorsky HR2S-1, an improved version of the transport helicopter bought for Marine use last year. The Navy will order about 100 HR2S-1's, about 100 of the aforementioned Bell HSL's for anti-submarine work, and divide the remaining 300 between several of the abovementioned types. A new procurement possibility is another transport type, the large, twin-rotor McDonnell XHRH-1, still in the development stage.

The Air Force will buy 22 H-19's and 18 H-21's.

Price Difference

An interesting feature of the helicopter procurement program is the cost of the eggbeaters. The large Piasecki H-21 costs the Air Force $730,000 each, including spare parts and engineering changes. The same plane costs the Army $439,000. The difference is that the USAF price includes the cost of communications, electronics and other essential equipment, whereas the Army pays only the basic plane cost and the extras are furnished the manufacturer from Air Force funds. Other sample helicopter costs include: Sikorsky H-19, about $200,000 for the Army and $250,000 for the Navy (the latter buys more spares); Kaman HOK-1, $453,000; Bell HSL-1, $486,000; Piasecki HUP, $342,000; even the comparatively small Bell H-13 and Hiller H-23 cost over $50,000 each.

ONE MERGER PROPOSAL consists of all lines in black on the above map. The other plan can been seen by combining the red line (National) with Northeast and Colonial.

CAB Pushes East Coast Merger Plans

Five airlines involved in proposal to form strong north-south trunk system.

By William V. Henzey

THE process of developing fewer but stronger domestic trunk-line systems via mergers, acquisitions and consolidations has been stimulated greatly by a Civil Aeronautics Board investigation which anticipates linking at least three or four eastern regional lines into a strong north-south system.

So great has been the effect of CAB's first affirmative merger move that merger negotiations among airline operators have reached a state perhaps unparalleled in the Board's history.

In fact, more than one-third of the domestic industry is now involved in the meshing of route structures which industry experts calculate may eventually result in a national system com-

prised of from six to ten self-sufficient carriers. (AMERICAN AVIATION, July 9.)

The CAB probe, known as the *New England-Southern States Merger Investigation,* will delve into the public interest features of:

• **Combining** Delta with Northeast, Colonial and portions of Capital, or

• **Linking** National with Northeast and/or Colonial.

CAB is free to admit that it is powerless to compel by direct order the merger of any airlines. It hopes, however to show through its investigation that one or more combinations of lines is required in the public interest.

From the more practical viewpoint, though, it can be assumed that CAB, with its control over mail pay, can indirectly prod reluctant airlines.

Significantly, however, little prodding may be necessary in light of voluntary negotiations now underway. Already in the Board's files is an application of Delta and Northeast to merge. In the stage of active consideration as this issue went to press was a Northeast-Colonial deal which would eventually be tied in with the pending Delta-Northeast proposal.

NWA-Capital Deal?

Also, rumors are strong that Northwest and Capital are trying to negotiate an arrangement which would link Capital's east-west Route 14 with NWA's system and might lead to voluntary transfer of CAP's north-south Routes 51 and 55 to one of the proposed north-south merged systems.

Thus, it is entirely possible that before CAB's investigation ever gets to the public hearing stage, the Board may have before it voluntary proposals.

Behind these developments, of course, is an honest effort by government and industry to create a strong national airline system that can operate free from subsidy—with the main obstacle being who will survive and who will be absorbed.

What is believed to be the over-all plan, generally exclusive of major changes in route structures of the "Big Four," is to merge the weak with stronger carriers where such merging will strengthen both. As the first move in this plan, the merger of eastern regional carriers has developed.

Genesis was in the voluntary Delta-Northeast proposal which, by itself was impossible unless (1) the widely-separated routes of the two lines were joined by an additional route grant, or (2) one or more other airlines entered the merger. Delta asked CAB to approve a route application which would extend its routes from Columbia, S. C. to New York, thus providing the missing link.

CAB then made it clear that it looked on the action as a means of starting the ball rolling on re-alignment of the domestic route structure and ruled out the Delta route extension, leaving a three or four-way merger as the only means of hooking the Delta and Northeast systems.

NEA-Colonial Confer

Meanwhile, apparently sensing this possibility, Northeast officials got together with officials of Colonial to work out a deal which, if consummated, would close the gap between Delta's and Northeast's routes by some 200 miles.

National, only opposed to any possible entry of Delta into New York, then indicated it had negotiated with Colonial and Northeast.

CAB followed all this with its first major play and announced the merger investigation with a four-way deal involving Delta or a three-way deal involving National as possibilities. In announcing its move, CAB said it has been quite concerned with the weak route structure of the small airlines serving the east coast region of the United States and that its action looks toward the integration of the small northeastern carriers with the stronger southern carriers.

Simultaneously, the Board consolidated its investigation with the pending Delta-Northeast case and four days later a prehearing conference was held. Implications of the investigation, however, were too great for any of the parties to form substantial positions on such short notice and the conference was deferred until late October at least.

However, 14 scheduled airlines were represented, emphasizing the significance of the proceeding.

For example, Capital said it would move to enlarge the case to include issues of possible transfer of segments of Eastern's and other carriers' routes to a merged north-south carrier. Capital also said it wants CAB to look at other possible combinations such as two-way hook-ups which might involve Capital and National or Capital and Delta.

It should be pointed out that Capital's management, just prior to the conference, announced publicly that it will not consider divesting itself of any city or route unless such action is in the best interest of the corporation, its stockholders, its personnel and the public it serves. Carrier added, though, that "consistent with its historic position, it is willing to discuss merger, consolidation or acquisition of control with other companies where the mutual interest of the respective companies will best be served."

For Capital, however, which claims it was "projected" into the picture in "indirect fashion," the situation is unique. CAB has taken the north-south segments of its routes and included them in the New England-Southern States Investigation. This leaves Capital's east-west Route 14 out of a merger proceeding at this time. If, as the rumor has it, Capital works out a plan with Northwest for that route, then Capital may find itself in two separate merger proceedings at the same time.

Also, somewhat removed from the major scope of these issues, but significant in the light of CAB's announced plan for a self-sufficient trunk-line industry and an improving but subsidized local service system, is the position taken at the recent conference by Robinson Airlines and E. W. Wiggins Airways, two local service carriers. Both said they would make bids for segments of Colonial and Northeast which may be local service in nature, in the event Colonial and Northeast are merged with larger carriers.

Thus, the basic issues inherent in CAB's much-talked-about realignment of the entire domestic airline route structure appear clearly in the first case involving realignment aspects, namely, the joining of several trunks into a self-sufficient carrier and the transfer of marginal points and segments to local service carriers.

AA Places $35 Million Order for 30 New DC-6's

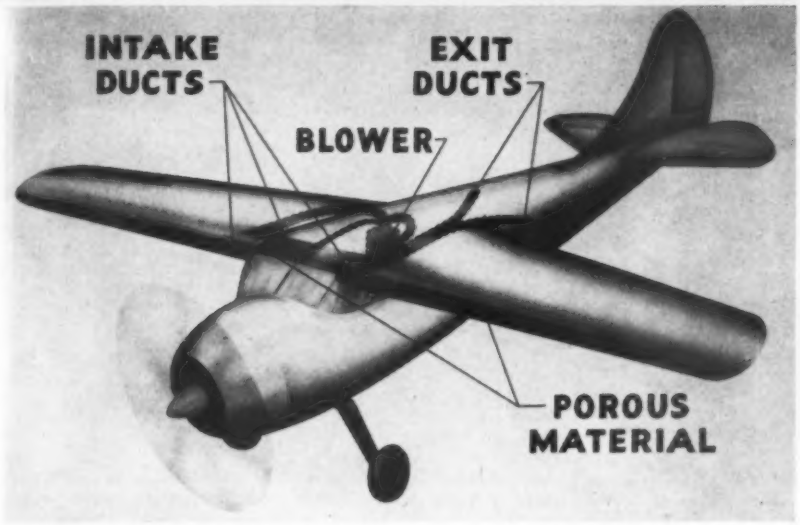
In a move which will increase its number of available seats by 37% and its cargo capacity by 100%, American Airlines has ordered 30 additional Douglas DC-6 type aircraft. The $35 million contract, covering purchase of 24 Douglas DC-6B type passenger planes and six DC-6A cargo planes, calls for delivery in 1953.

In announcing the contract American said that "no new financing is panned" for the purchase.

C. R. Smith, AA president had this to say about the relationship of these planes to future jet transport planes:

"When jet power has been thoroughly tested American will purchase jet airplanes. American has no plans for conversion of any of its present aircraft by the installation of jet engines. Experience indicates that when a new source of power is developed the best results are obtained by designing new airplanes equipped to utilize the power most effectively."

The 30 new planes will bring American's fleet to 188 aircraft. Of this number 96 will be DC-6 type aircraft, 49 of them basic DC-6's, 38 DC-6B's, nine DC-6A's. AA's twin-engine fleet is composed solely of 79 Convair 240's. It also operates 13 C-54 freighters.



FUNCTIONAL DIAGRAM of Boundary Layer Control in NACA's Cessna 190.

New Boundary Layer Control Tested

NACA experiments with drawing air through porous leading edges of Cessna 190 wings.

THE National Advisory Committee for Aeronautics has again put a light personal plane to work in an attempt to solve some of the problems related to high-speed flight of fighters, bombers and jet transports.

The plane is a Cessna 190, which has been equipped with a system of boundary layer control, a means of improving aerodynamic performance by applying suction to the wing surface, and has been undergoing flight tests since April of this year (AMERICAN AVIATION, May 28).

The boundary layer control equipment installed in the Cessna includes the first use of porous metal in BLC tests on a flying airplane and one of the first tests featuring suction along the leading edge instead of on the upper surface of the wing through slots.

Boundary layer control promises to provide increased lift, decreased drag and improved stability. It will also make possible wings of high aspect ratios, that is, wings which are longer and of less width, which in itself provides tangible improvements in operating characteristics. Higher aspect ratios combined with BLC will increase the payload and range of large aircraft.

The theory behind boundary layer control is relatively old, going back 25 years or more. In wind tunnel tests NACA has proved the operational possibilities of BLC time and again. Missing has been a practical method of applying BLC to a full-scale airplane because such a method would entail the development of an efficient means of pumping the great masses of air required for this type of control.

"Boundary layer" is the thin layer of air immediately above the surface of any part of the aircraft. As commonly used, the term refers more specifically to the wing boundary layer. At low forward speeds, this layer of slow-moving air tends to thicken, preventing smooth airflow over the wing, increasing turbulence and sharply raising wing drag until finally it separates from the wing, and a stall occurs.

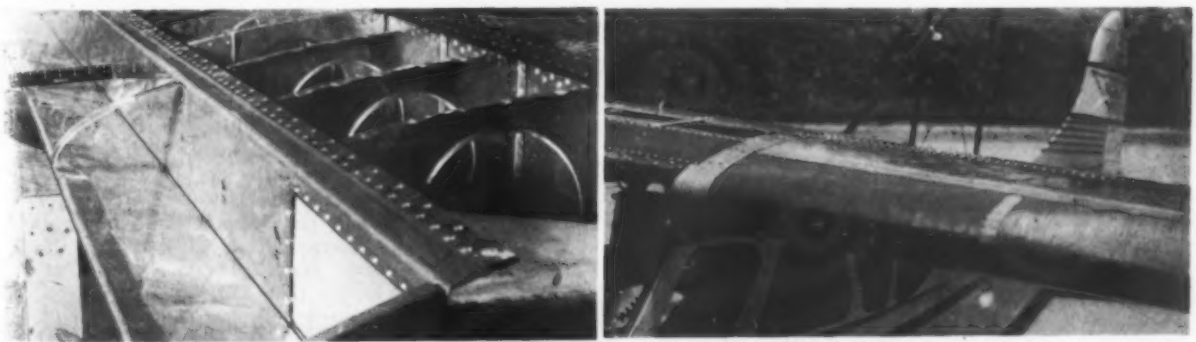
Wing slots, slats and similar devices are used to control the boundary layer by redirecting high-pressure air from beneath the wing to the top surface of the wing. This reduces the thickness of the boundary layer, reduces drag and delays or prevents separation.

Uses Pump

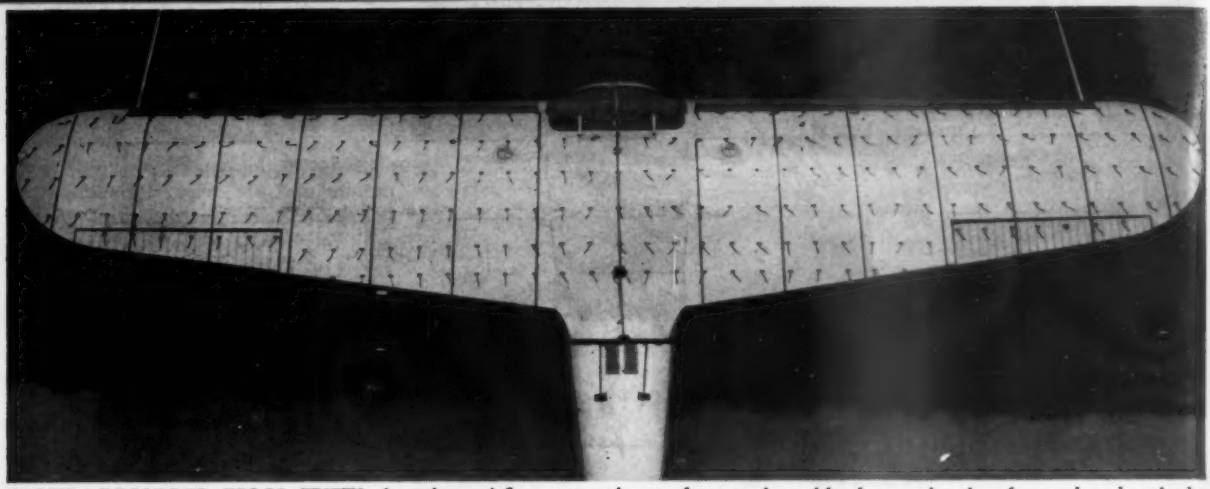
With boundary layer control this same action, reduction of the boundary layer, is accomplished by applying suction to the critical area and drawing the turbulent air into the wing beneath the surface, and then discharging it overboard via ducting and a pumping system. This air, as it passes to the pressure side of the pumping system, is discharged over the ailerons, thus increasing the speed of air flow over the controls and effecting greater lateral stability.

In the past, most BLC research effort has been directed toward the use of carefully placed slots along the top of the wing. The critical nature of BLC complicated the matter. Ideal slot location is dependent on wing design and on the wing's angle of attack, which varies throughout any flight. The porous metal skin promises to correct this shortcoming.

In the NACA Cessna (see photo) the leading edges of both wings have been used as ducts. The front spar forms one side of the duct, the underside of the metal wing a second side and the porous metal rounds out the duct, extending about 10% along the top chord of the



LEADING EDGE of the wing, showing (left) internal details of the spar and duct, and (right) the porous outer metal.



CAMERA-RECORDED WOOL TUFTS show how airflow over wing surfaces varies with changes in aircraft speed and attitude.

wing. The duct stops inboard of the wing-tip.

The porous metal is actually made up of monel metal filter cloth rolled and hammered to reduce porosity, backed by a layer of bronze window screening and a thick sheet of perforated brass to increase stiffness. Although the resulting surface is smooth and will pass air, it is so tightly knit that light can barely penetrate it.

Mounted in Cabin

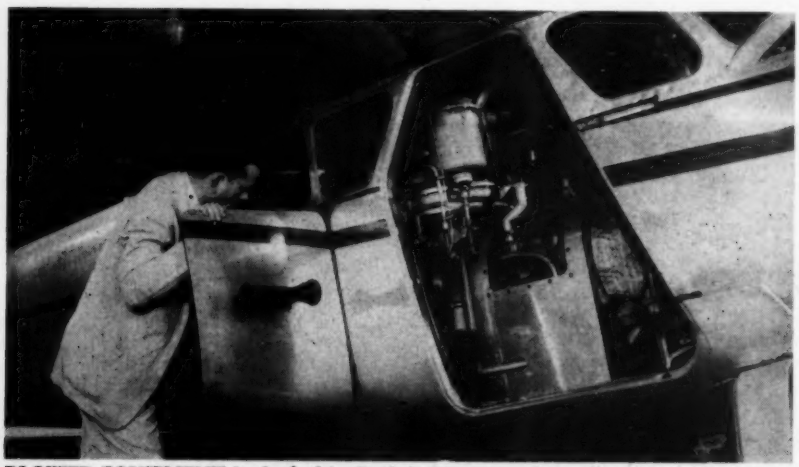
Heart of the NACA boundary layer control installation is a General Electric compressor, part of a turbo supercharger, which has been mounted in the cabin of the Cessna. Driven by a 25-horsepower gasoline automobile engine, the compressor or air pump handles 20 cubic feet of air per second. Metal ducts connect the suction side of the compressor to the wing leading-edge duct. The air drawn through the leading edge is discharged overboard on either side of the fuselage at the trailing edge of the wing. The engine turns at 5200 rpm, driving the compressor through a 1-3 ratio gearbox.

Provisions are made in the air ducts to measure the velocity and pressure of air flow. Special dampers are provided in the exit ducts to permit the pilot to stop air flow through the system.

As can be seen in the accompanying photos, this equipment is of considerable size and weight, although the plane still accommodates the pilot and one passenger.

Best for Fighters

Some day when highly efficient air pumps have been developed, an installation of this type will become practical for medium-sized aircraft. For the foreseeable future, however, BLC will show its greatest promise on highspeed fighters, bombers and transports, where its benefits will compensate for the weight penalty, cost and complexity.



BLOWER EQUIPMENT is checked by Paul A. Hunter, engineer directing the BLC tests.

CAA Combining Traffic Control, Communications

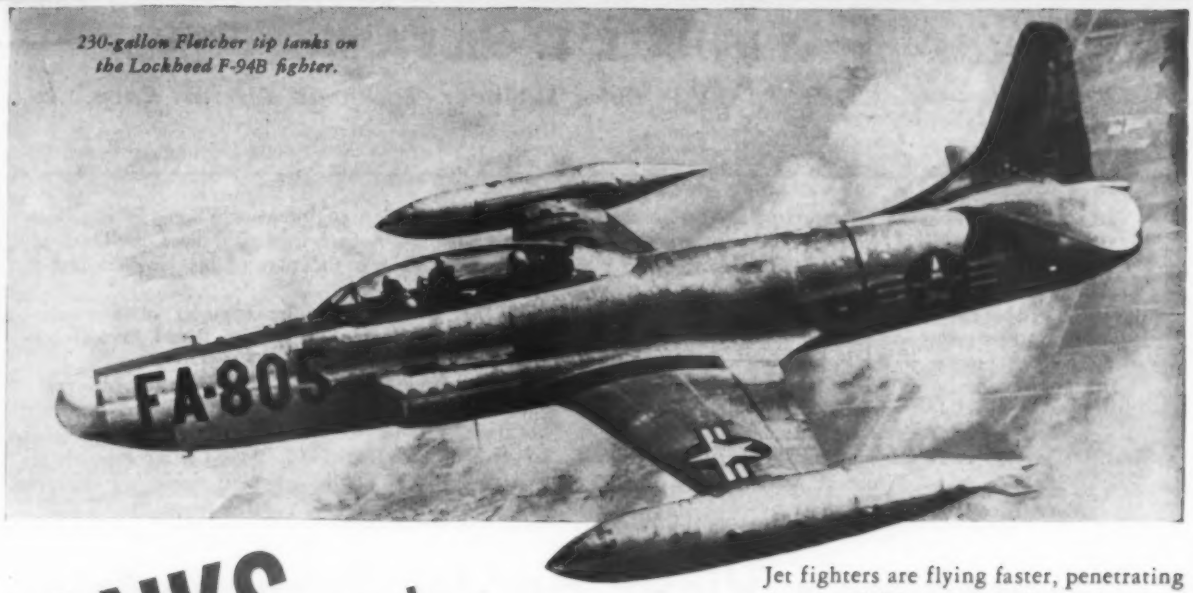
CAA has initiated a far-reaching program to combine the functions of its airport traffic controllers and communications men. Combining the two functions will, CAA feels, improve operations and at the same time help to alleviate the personnel problem.

Normally the control tower and communications stations are at two different sites. This means that the communications equipment must be brought into the towers. Sixteen units have already been consolidated and the program calls for an additional 65 stations during fiscal 1952 and about 50 more in fiscal 1953. Funds for these changes have not yet been appropriated.

Once the towers and communications stations are combined some reduction in the total number of personnel required will be achieved. Previously each unit has required a chief controller or communications man on each shift. Now a single man will be able to handle supervision of both groups except during busy shifts.

Both in Washington headquarters and in the regional offices steps have been taken to combine supervisory jobs. The new division will be headed by C. F. Burton, Chief, and George Rand, Deputy Chief.

While a reduction in the number of authorized personnel will be achieved by the new set up, this does not mean people will be laid off. There are now about 1,846 airport controller positions authorized and 4,173 communicators. More than 150 vacancies exist at the present time and this, plus the normal turnover in personnel during the transition period, should take up the surplus.



230-gallon Fletcher tip tanks on the Lockheed F-94B fighter.

TANKS and TANK BUSTERS

Jet fighters are flying faster, penetrating deeper, aided by wing tip fuel tanks of increased capacity and improved aerodynamic design. As a major designer and producer of these tanks, Fletcher is proud of their stake in the magnificent defense job being carried out by the Air Force.

On the other side of the defense picture Fletcher introduces their FD25 "DEFENDER," a new concept in air-ground fighter aircraft. *Carrying the punch of a heavy tank at one-twentieth the cost of such a tank,* the tiny "DEFENDER" becomes an extremely effective countermeasure against the estimated 40,000* armored units now in the hands of the potential enemy.

*LIFE magazine, May 28, 1951

The Fletcher FD25 "DEFENDER" shown with the various explosive loading combinations it carries.

U. S. NAVY PHOTO.

Fletcher Aviation Corporation

PASADENA | CALIFORNIA

Pulling Wings FLETCHER AVIATION *on the World*

Interview—with **HALL L. HIBBARD**

V.P.-Chief Engineer, Lockheed Aircraft Corp.

To obtain the opinion of an expert on the future of jet transports, AMERICAN AVIATION interviewed Hall L. Hibbard, vice president and chief engineer of Lockheed Aircraft Corp.

Under Hibbard's leadership Lockheed's design and engineering department has come to be regarded as one of the most progressive in the industry.

Hibbard, 48, has spent 23 years in the aircraft industry. After attending College of Emporia and Massachusetts Institute of Technology, he took his first aircraft job in 1928 as a draftsman for Stearman Aircraft Co., Wichita, Kansas. While at Stearman, he also served as consulting engineer for Viking Flying Boat Co., headed by Robert E. Gross, now president of Lockheed. This was the start of his long friendship with Gross.

In 1931 he became chief engineer of Stearman-Varney Co., Alameda, Calif., and joined Lockheed a year later as assistant chief engineer.

He was promoted to vice president and chief engineer in 1933, largely because of his work on the Lockheed Electra, the twin-engine, all-metal, 10-passenger plane which started Lockheed as a competitor to be reckoned with in the transport field.

Lockheed's Views on Jet Transports

Q. The press has reported that Lockheed has been trying to interest several airlines in a jet transport. Can we assume that Lockheed has frozen its basic design for such a plane and that any changes will be of minor nature?

A. It is true Lockheed has had discussions with airlines about a jet transport. The Lockheed company feels it has achieved a record of notable progress in the development of commercial aircraft. It intends at least to try to continue that record of progress. The logical direction to turn for the future is in the application of turbine power.

We have our plans for a jet transport and they are pretty well fixed for the size and the shape of the airplane, the number of engines it will have, the number of passengers it will carry. If that is what you mean by basic design, then it is correct to say that we have frozen the design and any changes made would be only minor.

Q. What, in your opinion, would be the cost of a 50-passenger jet transport?

A. Our idea of the cost of a plane of that type is about $2,500,000. At present cost levels, that is.

Orders, Not 'Assistance'

Q. Do you include engineering and all development costs in arriving at that estimate, or are you anticipating government assistance such as financing the cost of a prototype.

A. Personally, I have always been opposed to having developments costs for a commercial airplane paid by the government. I am opposed to the government giving somebody a check for $20,000,000 or $30,000,000 to build a prototype. In other words, I just do not think we should ask the military to foot the bill for an airplane we also intend to sell commercially.

What we want is orders. That is all we want. We need some orders from the military and we need some orders from the airlines. Our business is to build airplanes to sell. I do not mean to imply that we expect to get advance orders for the entire production output of the airplane. We have to take a business risk, which we should do. But we do have to have orders for a reasonable number to justify going ahead with production of so complex and expensive a piece of machinery as an airplane.

Q. What would you say is a reasonable number?

A. Forty perhaps. Or 50. That might be divided—just for the sake of argument—20 from the military, 20 from the airlines. The break-even point, of course, would be considerably higher, and in arriving at the price to charge for the airplane we probably would figure on producing 100 of even up to 200 airplanes.

Trans-Oceanic Operations

Q. Would the jet transport now on your drawing board be able to operate across the North Atlantic without refueling?

A. A broad answer would be yes. In both directions. But we are dealing with variables of weather when we discuss range, so perhaps this answer calls for some explanation. Let us say, then, that we would expect always to fly non-stop eastbound. We also would expect to fly non-stop westbound, except under the most severe weather conditions.

At altitudes of 35,000 to 40,000 feet, the cruising level for jet-powered craft, headwinds sometimes reach velocities of 150 to 200 miles an hour. We could design a jet transport to non-stop the North Atlantic against such headwinds, but it just wouldn't make sense. So we would expect under such conditions that a refueling stop would be made on a westbound crossing just as the airlines do now when they encounter abnormal weather.

Q. What is your attitude toward in-flight refueling for commercial jet transports?

A. I believe it will not find ready acceptance in the commercial field. There are a number of reasons. In-flight refueling would be very expensive. It would involve having tankers and trained crews and standby airplanes, all heavy expense items. There would always be the problem of refueling under bad weather conditions. Lastly, I do not think passengers would like it. For the military, of course, the situation is entirely different.

Q. Will existing Civil Air Regulations hamper jet transport development? If so, do we need a new set of regulations?

A. I see no reason why the regulations should present any difficulties in the development of a jet transport. There will be need of new regulations, of course. The airworthiness regulations will have to be extended to cover jet installations, but otherwise the existing airworthiness regulations appear

'. . . Deluxe passenger . . . planes should be pure jet'

to be all right. The regulations governing operations will need revision to fit in with the performance changes jet power will bring about. But this is a perfectly logical development. It should not impede jet transport progress.

Q. Do you feel the Constellation can be made an all-jet transport?

A. I assume by "all-jet" you mean pure jet. The answer is no. The Constellation is ideal for a turboprop transport and we are so sure of this that all Super Constellations now being built are designed to accept turboprop power. As a matter of fact, except for the engine installation, no structural change whatever is required.

Turbojet or Turboprop?

Q. Which would you say, Mr. Hibbard, will be the transport of the future, the turbojet or the turboprop?

A. I have been wondering how soon we would get to that. Well, it is Lockheed's belief that all-new deluxe type passenger transport planes should be pure jet. The jet will provide the passenger with the most performance, the greatest speed and comfort. With the new jet transport we have been talking about we would not only be able to give the passenger the best kind of a ride, but we would be able to give the airplane operator an airplane which would have a lower seat-mile cost than the airplane he is operating today.

On the other hand, we also are convinced there is a very important place for the turboprop, as witness our preparations to use that type of power in the Super Constellation. The turboprop will never fly as fast as the pure jet, but it can operate at an even lower seat-mile or ton-mile cost than the jet. The turboprop then will be the logical cargo carrier of the future, and it also can serve as the economy or coach plane in passenger service. This evolution in the two types of turbine-powered craft will provide excellent equipment flexibility for operators desiring to furnish different types of service.

Q. In view of the approach of these new airplanes, how much longer do you expect today's piston-powered Constellation to remain in service on the airlines?

A. Of course, airplanes just don't wear out, but I believe the present Constellations can be expected to be useful economically to the airlines for at least another 10 years. Super Constellations having compound engines will be good economically for 12 to 15 years. I can foresee Super Constellations being operated for 10 years with present engines and then operated another 10 years with turboprop engines.

Q. **What performance margin would the Lockheed jet transport have over the present British de Havilland Comet?**

A. The Lockheed transport will have a substantial performance margin over any existing jet transports in speed, range, passenger comfort and, above all, in cost per seat-mile.

Q. **Is Lockheed still interested in trying to provide a reciprocating twin-engined transport?**

A. We are interested in a twin-engined transport which could make a contribution to the local service or feeder-type carriers, but, very frankly, so far we have been unable to design anything that would bring about sufficiently lower seat-mile costs than those accomplished by present airplanes. We have explored this market pretty thoroughly. We have even considered a twin-turboprop design. It is quite possible the equipment of the future for this field is the big helicopter capable of carrying around 20 passengers.

Q. **Does Lockheed have plans for a twin- or triple-engined jet transport in addition to its four-engined proposal?**

A. No.

Q. **Would present military jet engines, if made available commercially, be satisfactory for your jet transport, or do you feel other engines would have to be developed first?**

A. Military jet engines now being developed will be eminently satisfactory. In general, you can say that any bomber engine will make a good transport engine.

Q. **Lockheed has said its L-1049B commercial cargo Super Constellation can be delivered in 1953 and modified to take Allison T-38 turboprop engines in 1956. What is the determining factor in the three-year spread?**

A. Engines. It must be remembered that it takes time to develop a commercial engine. The military does not have to be so patient. I think Allison is making very remarkable progress in its development of the military T-38, but it is our estimate that it will be 1956 before the commercial engine will be a moneymaker for an airline.

Q. **Based on Lockheed's experience with the Wright Turbo compound engine in the P2V, how long do you feel it will be before the airlines can anticipate service life and reliability equivalent to conventional piston engines?**

A. Just as soon as they get the airplanes. I do not recall when the timing on an engine and an airplane has been so perfect as on the Turbo Cyclone and the L-1049C Super Constellations. By December, 1952, when the first commercial Super Constellation having the compound engines is scheduled for delivery, the engine will have achieved two and one-half years of world-wide experience in our P2V's; it also will have been accumulating transport experience with the Navy. All of this means a powerful new engine, yet a proven one for the airline operators.

Q. **Does Lockheed have any new fighter designs on the drawing boards for the Navy or Air Force?**

A. I am not quite sure I know how to answer that. We always have advanced designs on the drawing boards. Lockheed's primary sphere of interest is in three types of aircraft: transports, patrol planes and fighters. We have engineering groups in each of these fields who constantly are at work on the development of new ideas and new designs.

Q. **This is at your own expense?**

A. That is right.

Q. **When can we expect the first flight of the new Lockheed XC-130?**

A. Normally, about two years would be required to put a four-engined turboprop cargo plane into the air. But the first flight of the XC-130 will depend upon military urgency.

AF Won't Buy XF-90

Q. **Do you expect to sell the Air Force on the XF-90?**

A. We do not. The Air Force has changed its concepts regarding the purpose for which this airplane was designed.

Q. **Lockheed once proposed a turboprop version of the Lockheed Constitution. Is the idea still alive?**

A. From Lockheed's standpoint, it most certainly is. The Constitution originally was designed so that it could take turboprop power. It would make a crackerjack airplane with P & W T-34's for example.

Q. **Your F-94C will use Pratt & Whitney's J-48 engine. Will the D model have the same power plant?**

A. Yes, the F-94C and the F-94D both will use the J-48 engine.

Q. **Do you expect to be authorized to build any outside planes besides the Boeing B-47?**

A. We have no present knowledge of such a proposal, but in emergency we are prepared and willing to build any airplane our government wants us to build.

IN THE NEWS

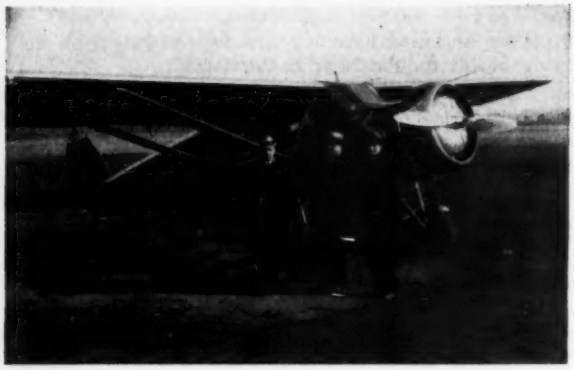
G-E FLIGHT TEST CENTER FINDS ANSWERS IN THE SKY

One of the biggest current programs, is an accelerated service test of G-E J47 engines in a North American B-45C, for the Air Force. This B-45 is one of the newest planes to join the Flight Test fleet.

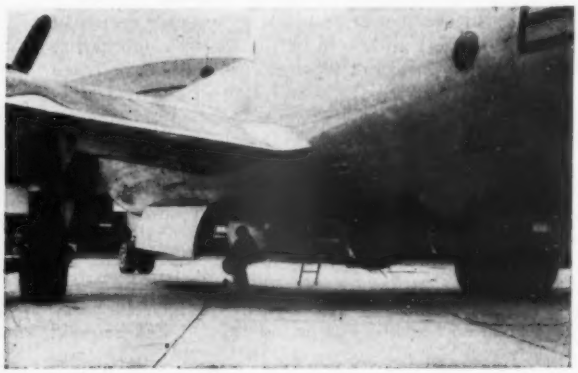
A sure way to test airborne equipment is in the air. So General Electric has established an invisible laboratory that stretches eight miles up into the sky.

At the bottom of this lab is the G-E Flight Test Center at the Schenectady, N. Y. County Airport. Here, a "private air force" is put through its paces with new and improved aircraft equipment. A division of the Company's General Engineering Laboratory, the Flight Test Center is devoted entirely to testing General Electric aviation equipment *in the air*.

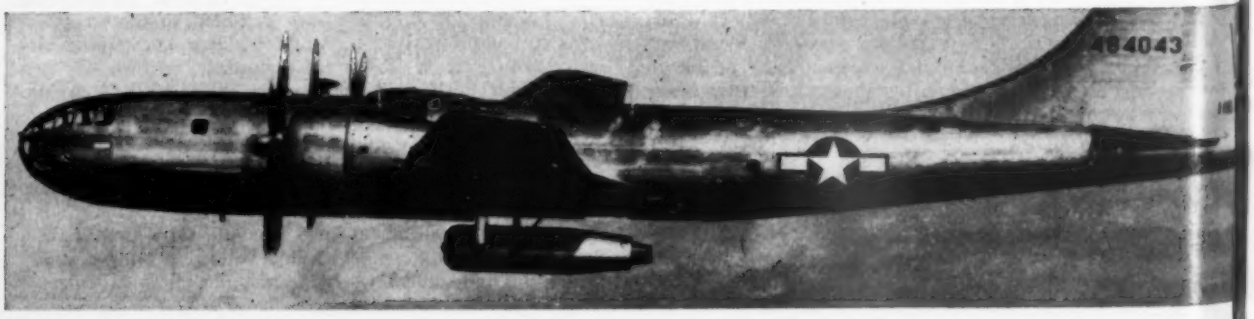
G-E's program of designing, testing, redesigning, retesting means better, more reliable equipment for you.



Ed Haven, left, now manager of G-E's Aviation Divisions, beside G-E's first airplane, back in 1930. Prior to this purchase, equipment was tested in a monoplane rented for a dollar a minute. Foresight of men like Haven made possible the extensive facilities now in use.



New engines and components are tested thoroughly while slung from the bomb bay of a B-29. Here a J47-GE-23, powerful new jet recently placed in production, is made ready in the Flying Test Bed. New engine control, anti-icing, and ignition systems were first proved and improved in this plane.



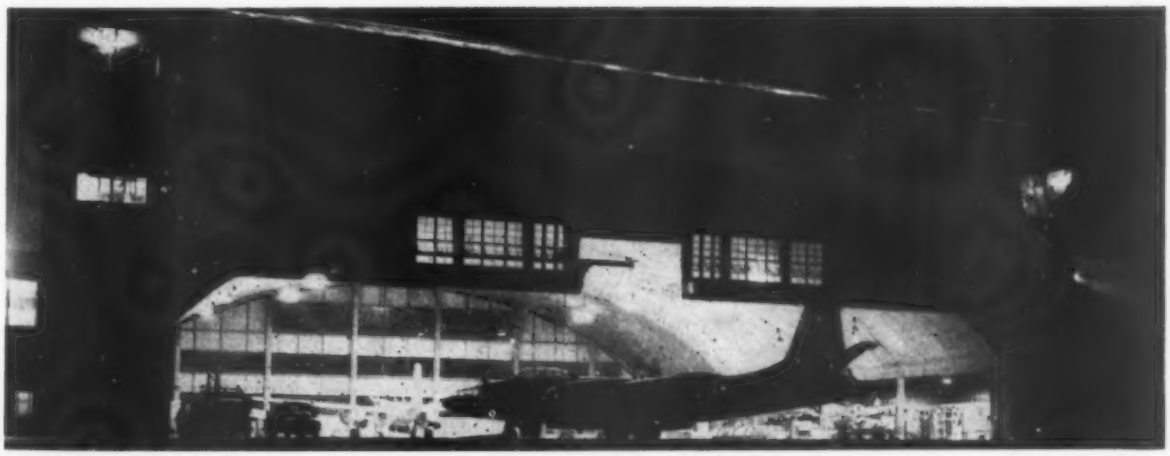
A B-29 is pushed along by a standard J47, specially instrumented for test work. Many engine features and pilot techniques first checked out here, are now being combat-proved in Korea. American Airlines crews, under contract to G-E, perform all flight operations.

Long distance wires and radio-telephones keep engineers in G-E's Aircraft Gas Turbine Divisions in Lynn, Mass., in contact with the crew in the test plane. Weldon Orme, at the Test Center, talks to Lynn (200 miles east) with the phone in his left hand, and the B-29 (eight miles up) with the phone in his right hand.

Special instrument panels in test aircraft are photographed four times per second. Cameras and instrument panels were specially designed for this purpose. After each flight the films are studied minutely to gain all possible information on operation of the engines.

Many types of aircraft are used. This B-23 tested high-altitude turbosuperchargers during the war. Cabin pressurizing from turbos, developed on this plane, is now in use on many military craft as well as on some commercial transports.

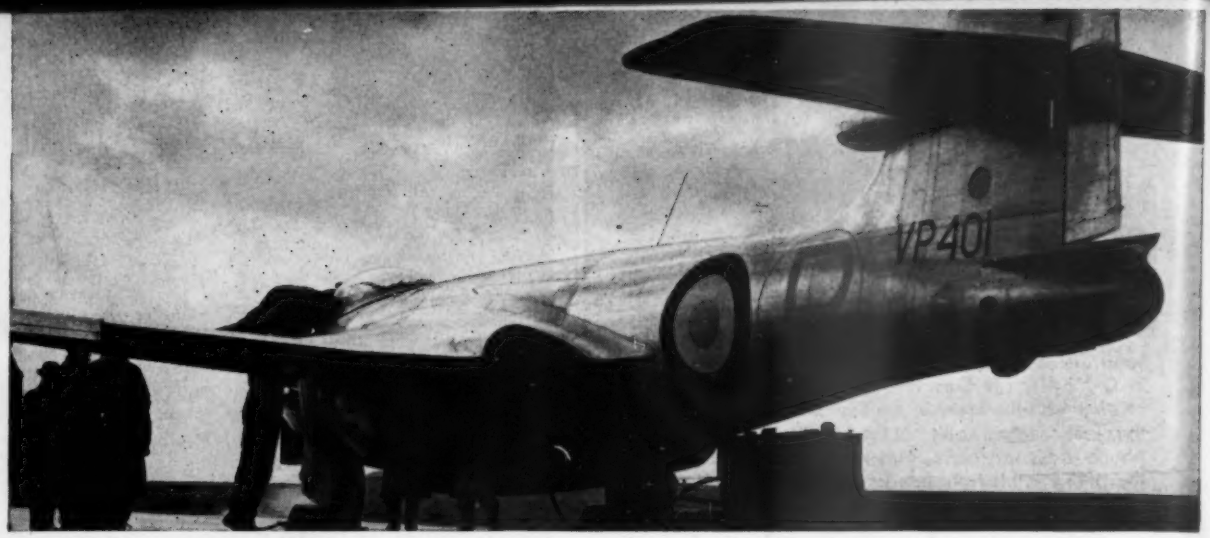
One of many projects at the Center has been a jet powerplant for a developmental helicopter. A 150-foot bowl served as a test pit for "Operation Skyhook." Ramjet, pulsejet, and turbojet engines are tested here.



The G-E stable of planes includes many loaned by the government as well as Company-owned craft. Closely guarded, the Flight Test Center tests armament, instruments, autopilots, radar, electronics and communications equipment, electrical systems, and other aircraft equipment, in addition to aircraft powerplants.

GENERAL ELECTRIC

210-24



THE SNARLER, Armstrong Siddeley's rocket motor used to boost a plane's performance, can be seen in tail at extreme right.

Britain's Problem: Transports or Warplanes?

Question raised at Farnborough whether both civil and military production can be handled.

Farnborough, England—Farnborough, site of Britain's annual aircraft display and flight demonstration, has become the symbol of Britain's postwar effort to capture world markets in both commercial and military aircraft sales. There is no doubt that this effort has been a successful one. The degree of Britain's penetration into these non-American markets has been controlled primarily by production factors alone.

Further, one has only to check the impressive roster of aviation experts from every part of the world who were among the 100,000 people in attendance at Farnborough during this recent show to realize that it is no longer a national event; it is international in scope and significance.

This year the British Aircraft Constructors, who stage the display, were faced with a serious problem. Logically the Airspeed Ambassador, a promising twin-engine transport going into service with British European Airways on Oct. 21; the de Havilland Comet, Vickers Viscount and other civil aircraft appeared ripe for commercializing.

But the touchy international situation, highlighted by Britain's $11 billion rearmament drive, makes it difficult if not impossible to visualize how combined civil and military commitments can be handled. Materials, manpower and production space are rapidly being absorbed by military commitments.

On all sides Britain's aircraft and engine manufacturers are caught between promising commercial possibilities, developed at huge costs in time, talent and money to counteract a then dwindling military market, and the reality of a sudden mushrooming in military business.

Problem Not Resolved

The problem has not been resolved. Britain will attempt to maintain some semblance of stable commercial production to preserve intact the seeds of interest which it has planted. Its success in this venture will determine the future of the Ambassador, Comet, Viscount, Bristol Britannia, Bristol 173, etc.

Meanwhile the British Aircraft Con-

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WORLD'S FASTEST, say the British of their Hawker P-1067. Details are secret.

structors had some promising new aircraft and engine developments to enliven the display of more standard models and exhibits. Trend toward higher speeds was emphasized by the average speed of all planes represented there: over 400 miles per hour. Average weight was over 35,500 pounds.

Twenty-one of the planes had conventional piston engines, 28 were powered by turbo props or jet engines. One-third of the planes on exhibition were those of the Royal Navy. Range of speeds represented in the show went from 26 miles per hour to over 700 miles per hour.

First Sonic Fighter

In the "over 700 miles per hour class" were two new planes unveiled publicly for the first time during the show. One of these was the Hawker P-1067, Britain's first sonic type fighter. Powered by a Rolls Royce Avon engine, militarily rated at about 7,200 pounds static thrust, the P-1067 topped all other performances by 700 m.p.h. passes across the field, 50 feet over the heads of the crowds. SBAC officials said these passes, while unofficial, exceeded the world's speed record.

Position of the Hawker P-1067 in the country's defense plans was made clear by the disclosure that it has been placed in production for the Royal Air Force.

Although scheduled to make its first appearance at the SBAC show, the Vickers Armstrong Supermarine Swift never did arrive. Unofficially placed in the same speed category as the P-1067, the Swift is also powered by the Rolls Royce Avon engine.

Supermarine 508

First information on the twin engine Vickers Supermarine 508 was also released during the show. This trim naval fighter, powered by two Avon engines buried in the fuselage, features a rather straight wing and a V-tail.

Prominent position of the Rolls Royce Avon in Britain's defense program is emphasized by its use in these three most recent designs as well as in the Canberra English Electric bomber, and the Vickers Valiant. What this demands in production resources is stressed by schedules calling for six factories to produce the engine—one of these is an automobile manufacturer and two others aircraft engine manufacturers.

Short's S. A.4 four-jet bomber, which made its prototype flight on August 10, was another of the new military ships making its first appearance at Farnborough. The S. A.4 is not scheduled for production. It incorporates straight wings and tail and, even with its four Avon engines, is obviously slower than the Vickers Valiant. It has logged about 11 hours since its maiden flight.

The 1951 show will probably be noted more for what it failed to show in the way of the industry's activities than for those items on display. Britain's jet research, including new jets and turbo props in development, were not released nor did the exhibition recognize any particle of work going on in the United Kingdom on missiles.

Napier Nomad

One engine attracting considerable attention in the static display was the Napier Nomad, a compound diesel engine. Rated at 3,000 pounds horsepower, the Nomad is a two-stroke cycle engine coupled to an exhaust-driven turbine. It weighs 4200 pounds and has a specific fuel consumption of .36 pounds per brake horsepower, shows signs of getting SFC down to .3 pounds.

Britons are looking at the Nomad as an interesting possibility to power the Lockheed L-1049 in British operation where it would serve in place of the Wright Turbo Compound, scheduled for the U. S. operators when the engines become available. A liquid-cooled engine, the Nomad is also under consideration as a possible substitute for the turbo prop Bristol Proteus in the 130,000 pound Bristol Britannia. The Nomad flew during the display in the nose of a Lincoln bomber.

Attracting no small amount of interest at the show was the Snarler, a 215 pound rocket motor rated at 2,000 pounds thrust. The Snarler, designed and built by Armstrong Siddeley, has been under development since 1947 but has been a highly classified project. It provides a versatile means of boosting aircraft performance by making available 2,000 pounds thrust for emergency or extended use. It can be turned on or off at the flick of a switch.

Snarler Rocket Motor

The Snarler is a rocket motor which burns a fuel made of liquid oxygen and water/methanol mixture, rather than a solid propellant common to present day rockets. This means that it can be operated for longer periods, periods determined strictly by the liquid fuel supply rather than the physical capacity of the rocket itself for solid fuel.

The Snarler fits in a space three by six feet. It has been undergoing flight tests fitted into the tail of a P-1072 (see photo). Since it does not rely on oxygen from the air for combustion it is capable of operating at any altitude and the thrust is increased effectively by operation at high altitude.

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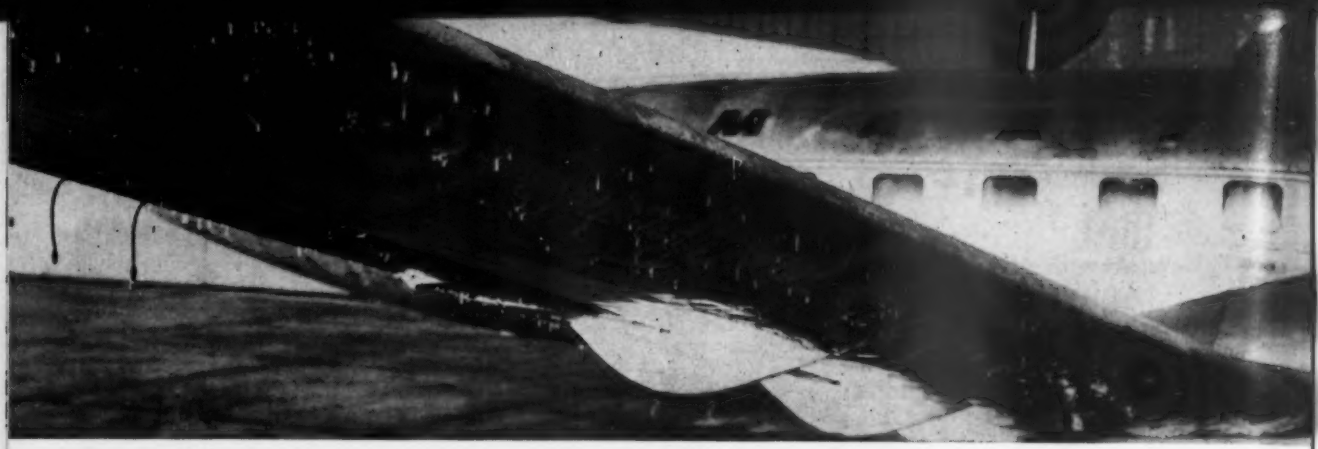
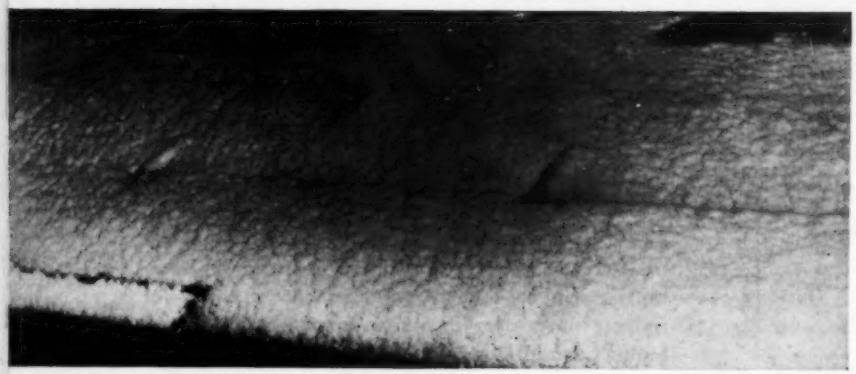
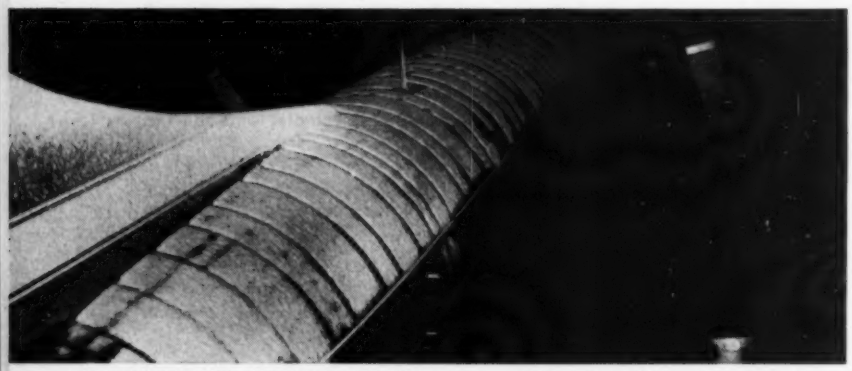


THIS IS THE MARTIN 4-0-4 prototype as it looked just before take-off on one of its extensive icing tests last February.

Martin 4-0-4 Passes Tough Icing Tests

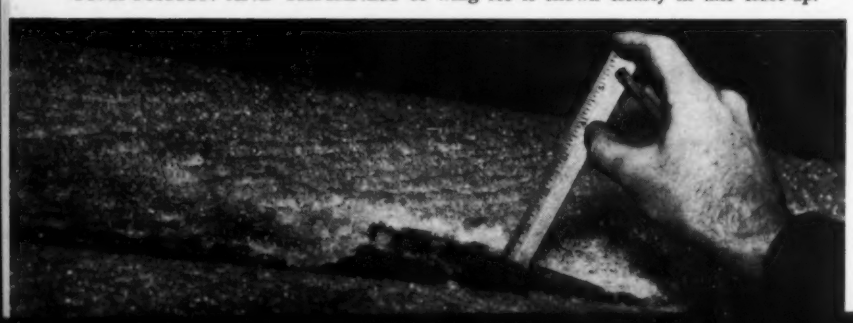


RIGHT WING AND AILERON, covered with rough snow and ice, after a flight test.



THIS MUCH SNOW AND ICE did not materially affect flying characteristics.

COMPOSITION AND THICKNESS of wing ice is shown clearly in this close-up.



THE modern transport aircraft is seldom called on to produce its peak performance. There is, and rightly so, a huge gap between day-to-day operational demands on an airplane and its proven ability under unusual operating conditions. No better example of this performance bonus can be cited than that shown in the accompanying photographs.

In some 70 flight tests over the past 12 months, O. E. (Pat) Tibbs, chief of flight test at The Glenn L. Martin Co., and fellow test pilot George Rodney have put the prototype Martin 4-0-4 through some of the most grueling icing tests ever performed on a transport aircraft. With heavy ice and snow coating large sections of the wings, fuselage and tail, the 4-0-4 was operated at 39,000 pounds gross weight.

70 Flights Made

Maneuverability of the 4-0-4 under large amounts of ice and snow was beyond the expectations of both engineering and flight personnel. In the 70 flights, each documented by still and motion pictures, the airplane exhibited handling characteristics well above critical limits.

"Nothing in these tests should be construed as an argument to change well-known practices in regard to flying under icing conditions," urged Tibbs and Rodney.

These tests were run to determine how performance and control are affected by ice in various configurations on wings and control surfaces. They proved that today's high-speed airplane, with its thinner wing and higher wing loading, can be flown much more readily through icing conditions than can older types of transport aircraft.

During passage of a cold front in Feburary, between one-half and one

inch of snow and ice accumulated (see photos) on the plane. Prior to flight, snow had to be cleared from the elevators because they were 50 pounds out of balance. About four minutes prior to take-off the thermal deicers were turned on. Taking off at 39,000 pounds gross weight, (wing loading 45 pounds per square foot, power loading 8.2 pounds per brake horsepower) ice along the wing leading edge, back to about 11% of the chord, cleared during take-off. While aileron control forces were about 50% greater than usual, no critical performance or handling was experienced.

Another test was conducted with simulated ice, ice formed by spraying water on the wings from a fire hose using a fog nozzle. In one such test the right wing was kept clear of ice, the left covered with one-half inch of rough ice (see photo) completely across the aileron and immediately forward of it. Ailerons were 30 pounds out of balance.

Engine Feathered

On take-off 25 degrees right control wheel was required and the rate of roll was reduced 20%. Single-engine operation, feathering the critical engine, was performed with rolls into and away from the dead engine. Power-off stalls did require large amounts of right aileron at the stall to prevent rolling.

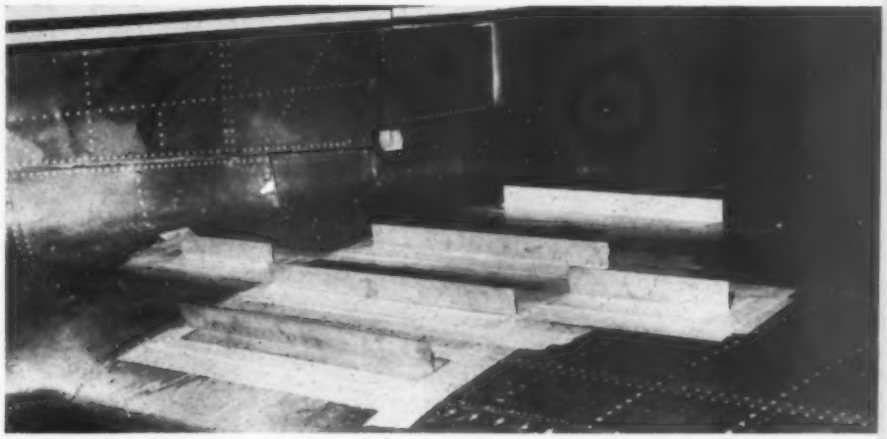
The photo (top of first page) showing icicles dripping from the lower side of the wing and another showing a ruler alongside the wing ice were made prior to a flight in which both wings were coated with rough ice. This was the most critical of all tests, with uneven ice loads, requiring the highest aileron forces but still within pilot limits. Particularly bad on take-off, the plane required 35 degrees right aileron.

Wing heaviness in flight made it impossible to maintain trim with trim tab alone at all speeds, and level-flight control forces were markedly higher. Aileron effectiveness was reduced 30 to 40%, but still the engine on the critical side was feathered and rolls into and away from the dead engine handled successfully. Little improvement in flight characteristics resulted when the leading edge was deiced during this flight (see photo), apparently because the remainder of the wing remained ice-covered. A normal full-flaps landing was made using lots of aileron on touchdown.

In addition to flights with actual and simulated icing conditions, the Martin 4-04 tests included a series with aluminum and wood spoilers installed in critical areas (see photos) to simulate even more severe icing.

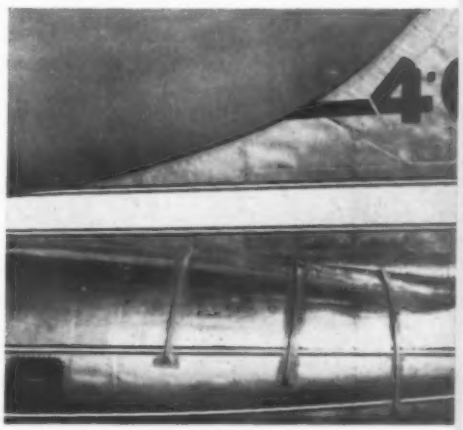
Some conclusions drawn from the tests:

EFFECTIVENESS OF THERMAL ANTI-ICING shown in post-flight photo.



THESE ARE TWO-INCH aluminum spoilers on the horizontal tail and in the fillet.

- **Little difference in plane performance** could be detected by the pilots.
- **None of the tests** affecting the empennage produced the slightest shake or other adverse effect on any of the control surfaces.
- **Ice will produce conditions** of wing-heaviness and/or irregular aileron forces yet the worst condition encountered in the tests reduced aileron effectiveness only about one-third.
- **As wing flaps are lowered,** force irregularities return toward normal and there is a rapid and large shift in the lateral trim toward normal.
- **Formations of ice or snow** immediately ahead of the aileron lessen aileron effectiveness but create little wing-heaviness.
- **Enlarging the disturbed area** further forward of the aileron, ahead of the maximum wing camber, causes distinct wing-heaviness if the condition is asymmetric. In an aggravated state, wing-heaviness will exceed capacity of aileron trim tab.
- **Conditions causing airflow disturbances** at and forward of maximum camber affect aileron effectiveness noticeably, reducing it about one-third.
- **Protuberances on the bottom of the wing,** immediately ahead of the ailerons, affect both aileron forces and effectiveness. Only a slight amount of wing heaviness results.



SPOILERS were also used forward of the horizontal stabilizer (above), and in the fillet between fin and stabilizer (below).

What's behind Eastern's

DOUBLE DEPENDABILITY

A look behind the scenes at Eastern Air Line's great maintenance base reveals why Eastern lays such stress on "Double Dependability." There, you will find that Eastern takes extra pains, extra steps throughout its overhaul operations, to make doubly sure its planes perform properly.

And Eastern's deep concern for safety applies in its choice of engine lubricants, too. For this critical element, Eastern relies, exclusively, upon Sinclair Aircraft Oil.

SINCLAIR

Aircraft Oil for

DOUBLE DEPENDABILITY

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NIGHT AND DAY—Each of Eastern's planes returns about once a week to the huge maintenance base in Miami for a thorough check-up. Every important part of each plane is checked over carefully.

ONLY EASTERN DOES THIS—Here parts of the fuel injector are remeasured by the Electrolimit Gauge. Parts must fit with tolerances between 90 and 110 millionths of an inch!

500 MAN-HOURS are spent on each major engine overhaul—many more hours than standard requirements. This is part of Eastern's Double Dependability.

DOUBLY DEPENDABLE LUBRICATION—Eastern demands reliability in its lubrication, too. Only Sinclair Aircraft Oil is used, for less wear, less heat and lowered maintenance costs.

1952 IATA Meeting to be Held in Switzerland

Next year's general meeting of the International Air Transport Association will be held in Switzerland, and Dr. W. Berchtold, president of Swissair, has been elected IATA's president, to take office at that meeting.

At the seventh annual meeting in London last month, Argentina sent a formal invitation to IATA for the 1952 meeting. The invitation carried a threat that the Argentine airline would resign from IATA if the bid wasn't accepted.

IATA members resented the threat and voted overwhelmingly to go to Switzerland. It remains to be seen if the Argentine airline resigns. No top Argentine airline official was at the meeting.

Warren Lee Pierson, TWA board chairman, was elected to IATA's executive committee and the following were re-elected: G. R. McGregor, president of Trans-Canada; Gilbert Perier, president of SABENA; Dr. Albert Plesman, president of KLM; M. Roushdy Bey, chairman of Misrair, Egyptian airline.

Financial committee: Named to serve until 1952 meeting was V. J. Long, American Airlines, and following were named until 1953: R. L. Weir, British European Airways; T. Sorensen, Scandinavian Airlines System; P. Brabant, SABENA; R. Montarnal, Air France; R. P. Hartley, Central African Airways, and B. Smallpiece, BOAC.

Legal committee: P. J. Brennan, Aer Lingus; James Clark, Canadian Pacific; Samuel Gates, American; K. H. Staple, BOAC; W. A. Steenstra-Toussaint, KLM; Dr. Francisco Serrano Sequira Baptista, DETA (Portuguese West Africa), and Juan Viniegra, Iberia, all named until 1953.

Technical committee: Until 1952, K. Hagerup-Svensden, SAS, and until 1953, D. S. Cox, Northwest; G. de Meiss, Swissair; R. Dupre, Air France; Paul Goldsborough, TWA; Capt. J. C. Kelly-Rogers, Aer Lingus; A. Vernieuwe, SABENA; W. W. Braznell, American; P. M. Reddy, Deccan Airways; Ing. P. Magini, ALI Flotte Riuniti, and J. McOran Campbell, Central African Airways.

Traffic committee: Until 1952, J. Nielsen, SAS; W. G. Wood, TCA; M. de Villenueve, Air France, and until 1953, J. W. S. Brancker, BOAC; F. von Balluseck, KLM; Amos Culbert, NWA; R. W. Ireland, United; S. K. Kooka, Air India International; P. C. F. Lawton, BEA; W. G. Lipscomb, Pan American; L. Schoevaerts, SABENA; Col. B. L. Anderson, Philippine Airlines, and Walter Sternberg, National.

CAB Blames NWA Pilot For Butte Accident

CAB has determined that probable cause of an accident involving a Northwest Airlines Martin 2-0-2 near Butte, Mont., Dec. 7, 1950, was "failure of the captain to conduct the flight in accordance with the prescribed approach procedure." The four crew members and all 17 passengers were killed.

On an approach to Butte Airport, the plane struck the eastern slope of a ridge 30 feet below its crest, at an altitude of about 8,250 feet, approximately 2½ miles east of Butte.

Both Whitehall Range Station and Homestake Fan Marker, which are used for instrument approaches to Butte Airport, were functioning normally. The Board found that had Captain Lloyd Lampman used these facilities as prescribed the accident would not have occurred.

The weather at the time of the crash provided intermittent visibility between snow showers and clouds. The Board found that Captain Lampman probably anticipated clear enough weather ahead to permit him to go through Homestake Pass visually.

Board Questions C-46 Take-Off Performance

"Subnormal take-off performance of the aircraft, the reason for which cannot be determined," was named by CAB as probable cause of an accident involving a Curtis C-46F Commando operated by The Flying Tiger Line. After take-off from Stapleton Air Field, Denver, Colo. July 30, 1950, the plane mushed in from 100 feet.

No one was injured in the accident, but the airplane was destroyed. Investigation showed that the aircraft, engines, and propellers were apparently operating normally.

Captain Douglas K. Robbins and Copilot Cleo Monte Treft reported that during take-off the engines developed 45 inches of mercury manifold pressure and 2700 RPM. After the take-off run of 6,980 feet, with almost no wind, the air speed was between 90 and 100 miles per hour, and the plane was pulled off the ground.

Severe shuddering of the plane and its failure to accelerate to more than 100 to 105 mph after take-off indicated that the plane entered a partial stall, resulting in the crash.

Truce Team Airlift—When the "cease-fire" talks began at Kaesong on July 10, United Nations envoys selected Sikorsky helicopters—the big new Air Force H-19 (S-55) and three smaller S-51's—as the most expeditious means of travel to and from their advance camp at Munsan.

This activity marked a full year's operations in Korea for Sikorsky helicopters—a year in which they dramatically demonstrated their value as a military all-purpose aircraft. In rescue work alone, Sikorsky helicopters saved over 3,000 wounded or isolated men, many of whom would have died or would have been captured except for this unique instrument of rescue. In other military assignments, such as reconnaissance, liaison, and ferrying both personnel and materiel, they carried out important roles.

Sikorsky production lines are continuing to turn out S-55's in quantity for the Army, Navy, Marine Corps and the Air Forces. Meanwhile creative engineering at Sikorsky is moving forward on such advanced projects as a "convertiplane" and a Marine Corps assault-type helicopter.

SIKORSKY AIRCRAFT

BRIDGEPORT, CONNECTICUT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

A Defense of Flight Pay for Desk Jockeys

By James J. Haggerty, Jr.

SEN. Paul H. Douglas, a Democrat from Illinois, has started a new military controversy which is arousing considerable interest these days, and for once the Air Force and the Navy are unified in thought against Douglas.

The controversy started when the Senator persuaded his colleagues (though not all of them) that flying officers doing desk work should not be permitted to draw flight pay. He succeeded in tacking the following rider on the fiscal 1952 defense appropriation bill:

"No part of any appropriation contained in this act shall be available for the payment of flight pay to personnel whose assigned duties do not involve actual combat missions or do not involve flight in excess of 20 hours a month."

This rider has become one of the chief topics of conversation in military circles these days and has started any number of heated arguments. Naturally, the desk jockeys who are now drawing flight pay are firmly convinced that it is a good thing, and those who are not, with the inborn jealousy that characterizes most of mankind, are just as firm in their beliefs that it should be eliminated. But these are personal views and not particularly pertinent. The real issue is whether the money spent on letting administrative rated officers draw flight pay—$50-75,000,000 a year to use Mr. Douglas' own estimates—is worthwhile from a defense standpoint. We think it is.

In the first place, we can assume that payment of a bonus for the risk involved in flying is legitimate. Mr. Douglas admits this when he says he is willing to go along with flight pay for those getting more than 20 hours a month. So we can eliminate the argument of whether flight pay per se is legitimate.

Joy Riding Pays Off

Next comes the question of what value is it to the country to pay desk officers flight pay for a few hours a month of what Douglas terms "joy riding." Actually there is considerable joy riding involved; there's no denying that. But in the process of joy riding, these desk officers are maintaining a certain degree of flying proficiency against the day when they may be called upon to resume operational flying.

If we went to war tomorrow we would need tremendously more aircrewmen than we now have in operational outfits. Where we now have one, perhaps two crews to an airplane, we would need three to six on war status, since obviously a crew can't fly 100 missions in 100 days. The several thousand rated officers now doing administrative work could fill a part of the extra requirement immediately; they would fill a gap until we could step up the training program and turn out larger numbers of younger, more proficient flyers. Admittedly, they would not at first be top hands. But a second-rate pilot is better than no pilot at all.

An Air Force fighter pilot friend of ours, now jockeying a desk around the Pentagon, estimates that, at his current rate of proficiency flying he would be able to handle a jet fighter well enough to participate in combat in 30 to 40 days. He also claims that, if he were taken off flying status for a year, at the end of the year he would be no more ready to step into a jet than a fledgling aviation cadet.

Persons not familiar with flying can't understand it, but a pilot can not be expected to handle a plane properly after a long layoff. His coordination is faulty, for one thing, and he had to stop and think before doing things he would do automatically if he were flying every day. And the constant changes in procedures require an up-to-date knowledge of them.

Mr. Douglas also resorted to some double talk in persuading his colleagues to hack away administrative flying pay. He said, first, that rated officers are required to fly only four hours a month and, second, that a pilot can draw flight pay by merely riding as a passenger. Both statements are patently untrue. Rated officers are required to fly a minimum of 100 hours a year, including 35 hours of instruments and 15 hours of night flight. They may draw one month's pay for four hours' flying time, but they won't draw it long if they don't meet the yearly requirements. Actually, most desk flyers exceed the 100-hour requirement by a wide margin and a number of those we know grumble because they are limited to 150 hours a year for economy reasons and because of a shortage of planes. Second, no pilot may log passenger time for his requirements; he must be sitting in the cockpit.

Pilot Pool

These minimum requirements, we think, provide the desk jockeys with a fair degree of proficiency and provide a pool of reasonably trained flyers, a pool which is just as important in case of emergency as the Air Reserve pool. Surely Mr. Douglas does not advocate the elimination of the reserve program, too.

There's still another angle to consider in this argument. The Air Force and Navy have career officer programs, whereby an officer is channeled through a number of different jobs on his way up the line. A group commander, for instance, who has had nothing but flying jobs throughout his career, must spend some time in a staff position before he can move up the ladder. A 30-year man might spend 15 years of his service in staff jobs. Should he be taken off flight status every time he is moved into a staff job, then be forced to start flight training all over again when he moves back to an operational post?

Finally, the amount of money Douglas hopes to save through his amendment, though it sounds big, is actually pretty puny when you consider our over-all defense costs, which should run about $100 billion this year. It comes to about one-twentieth of one percent of the total. The $50-75,000,000 we will spend on administrative flying is insurance money. We are spending much larger sums in other types of insurance; for instance, we are spending billions on plant expansion programs to build a base for production which may never be needed. That's insurance of the same type; would Sen. Douglas eliminate that, too?

The Douglas amendment has yet to pass the House. We hope that the lower body will give more thought to this great economy program than did its Senatorial counterpart.

CLASSROOM *in the clouds*

► Nearly a year of intensive air and ground training is needed to qualify an Air Force student as a navigator. To speed up the training program, the Air Force now instructs groups of 10 to 14 men simultaneously in flying classrooms equipped with Sperry instruments.

► Minimum tie-ups of valuable manpower and equipment . . . realistic training in navigating and tactical procedures . . . individual instruction of trainees are the results of the speeded up training program in the new Convair T-29 flying classrooms.

► Students have finger-tip access to Sperry equipment which helps them solve involved navigational problems—even extremely difficult ones met over unchartered polar areas.

► Sperry navigational facilities provided are the Gyropilot*, its standard accessory, Automatic Approach Control, and flight instruments for attitude and direction. Fourteen repeaters . . . one at each student station . . . are controlled by the Master Gyrosyn*Compass. Thus Sperry—by providing the very latest aids to navigation—helps the U. S. Air Force develop new "men of precision."

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IN CANADA—SPERRY GYROSCOPE COMPANY OF CANADA, LTD., INTERNATIONAL AVIATION BUILDING, MONTREAL

Production Spotlight

Cessna Building 2,000 L-19's: Backlog of Cessna Aircraft Co. has reached $80,000,000, largely in Air Force contracts. The company is building more than 2,000 L-19 liaison planes under USAF contract, and is subcontracting to make parts for the Boeing B-47 jet bomber, Lockheed's F-94 fighter and T-33 trainer, and the General Motors version of the Republic F-84F. In addition, the company has some commercial production of the Cessna 190.

Twin-Bonanzas Rolling: *Beech Aircraft Corp. has delivered two of its first six-place Twin-Bonanzas to Carco Air Service, which operates a charter air service, hauling passengers and freight, for the Atomic Energy Commission. Carco operates between Albuquerque, N. M., and several AEC installations, particularly the atom bomb test range at Los Alamos, N. M.*

Another P&W Plant: Pratt & Whitney Aircraft Division is still spreading out in the Connecticut area. The company has leased another plant in Waterbury, Conn., with 70,000 square feet of floor space. The former Manufacturers Foundry Co. building, the plant will be used as a receiving center and transfer point for machine tools destined for P&W's other plants in the area. The lease is for four years.

Solar Helping with J-47: *Solar Aircraft Co. has received an $8,000,000 contract to produce parts for Packard Motor Car Co.'s version of the General Electric J-47 jet engine. Solar will build aft frames, exhaust cones, turbine casings, transition liners and inner and outer combustion chamber liners. Work will be done at the company's new Wakonda plant in Des Moines, Iowa. Deliveries are scheduled to start next March.*

Old Help Still Around: An idea of what can be expected in the way of re-recruiting workers who served in aircraft plants during the last war is contained in a survey made by Lockheed Aircraft Corp. at its new Marietta, Ga., plant, where the company will turn out Boeing B-47 jet bombers. The survey shows that 22% of the workers now on the payroll worked for Bell Aircraft Corp. when it operated the same plant during World War II. Lockheed anticipates that the percentage will go up to 35% as more help is added at the plant.

How To Be Cleared: *To help businessmen bidding on defense contracts and to enlarge their bidding fields, the Munitions Board has published a booklet explaining how prospective bidders can be cleared to handle classified information. Entitled "How To Be Cleared For Handling Classified Military Information Within Industry," booklet is available at 10c a copy from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.*

Douglas and Nevada Air Products: Douglas Aircraft Co. has awarded a $2,500,000 contract to Nevada Air Products Co., Reno, Nev., for assembling rudders, horizontal stabilizers and wing flaps. The Nevada firm will start production about January 1, 1952, in a 50,000 square-foot plant formerly operated by Mobilhome Corp.

Remanufactured T-6G: *North American Aviation's Columbus (Ohio) Division has successfully test-flown the first T-6G Texan trainer to be "remanufactured" at the division. The first test flight was completed just four months after the remanufacturing program started at the comparatively new plant. Other T-6G's are now starting to roll off the production line at Columbus, where current plans call for the remanufacture of several hundred of the trainers.*

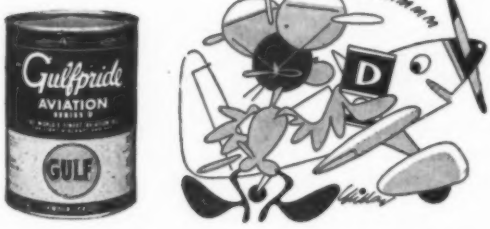
Borg-Warner Builds: Borg-Warner Corp. will build a $3,000,000 plant for the manufacture of electrically driven hydraulic and fuel pumps for jet engines at Wooster, O. The 104,000 square-foot plant is expected to be in production in April or May of next year.

—J. J. H.

What's the right oil for *your* airplane engine?

You've heard so much about aircraft oils you probably want to know which one is best for *your own engine*. Good idea. You'll fly more safely, no matter what type of engine your plane has, if you use the *right* oil for your engine type. For example:

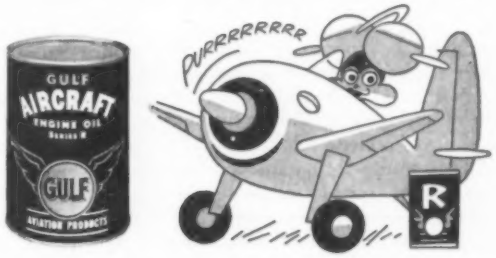
Horizontally opposed engines need Gulfpride Aviation Oil Series-D!



Here's the world's finest detergent-dispersant aviation oil. It's made *exclusively* for use in horizontally opposed engines. Because it is put through Gulf's exclusive Alchlor Process to remove extra amounts of carbon-and-sludge formers, Gulfpride Aviation Oil, Series-D, prevents ring and valve sticking . . . maintains a cleaner, better operating condition longer.

Actually, users have increased periods between engine overhauls as much as 100% with this great oil!

For radial engines or where a detergent oil is not desired, use Gulf Aircraft Engine Oil Series-R!



Assures superior performance in radial engines. Especially recommended for maximum operating periods between overhauls, it may also be used in horizontally opposed engines when operating conditions do not require a detergent oil.

A fine-quality, non-detergent, straight mineral oil, Gulf Aircraft Engine Oil, Series-R, is highly effective in retarding sludge formation. Maintains its body at high operating temperatures, too.

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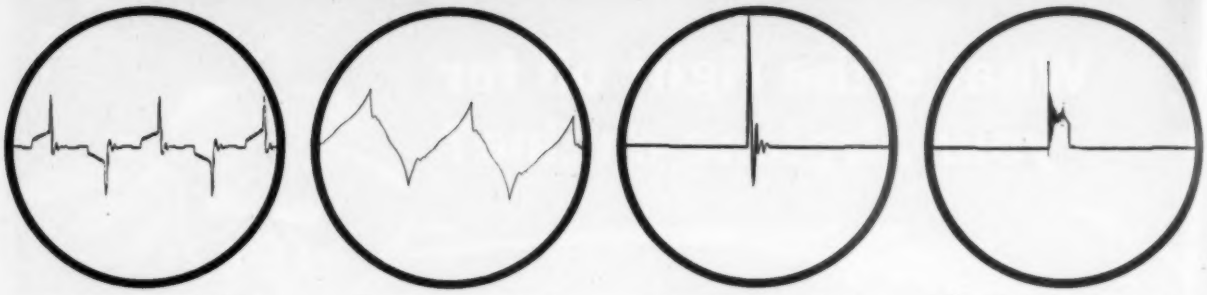
AVIATION PRODUCTS

For More Flying Fun—Don't Settle For Less Than Gulf!

And remember—the Gulf Airgide Directory lists Gulf airport dealer locations and many others throughout the U. S. and Canada. Comes in mighty handy. Get your copy from your Gulf dealer.



Severe Breaker Arcing | Open Primary Circuit | Open Secondary Circuit | Partially Shorted Secondary

Bendix Speeds Ignition Analyzer Production

Company producing 150 units a month for use by military, airlines and manufacturers.

By William D. Perreault

UNLIKE U. S. legal practice, where one is considered innocent until proved guilty, the technician shooting trouble on an aircraft ignition system, to ensure accurate diagnosis, must consider every unit guilty until proved innocent.

Unfortunate but necessary result of this harsh method of isolating ignition troubles has been that as high as 50 to 75% of all ignition units removed because of suspected malfunctioning have proved to be in good operating condition when tested following removal. Premature removals account for a high percentage of mechanical delays. An average airline aircraft, one study shows, experiences from four to seven mechanical delays per year due to ignition difficulties.

These same factors lead to useless expenditure of manpower and time during line maintenance activities, overloaded overhaul shops, excessive spare parts inventories and generally higher operating costs.

The Bendix Electronic Ignition Analyzer has made tangible inroads into these unwarranted ignition system maintenance problems. It has been designed with the aircraft mechanic in mind. Using the mechanic's basic instinct for comparing a suspected unit against one known to be operating properly, the analyzer provides a simple visual means by which the ignition characteristics of a group of cylinders can be observed simultaneously.

If one or more plugs are misfiring, the shape (see analyzer patterns above) of the non-standard pattern tells instantly what the nature of the difficulty is. This information, presented in the form of characteristic wave forms as shown above, appears on a television-like scope on the analyzer.

Its effectiveness can be gauged by its acceptance. Twenty airlines throughout the world are using the Bendix analyzer, as are three engine manufacturers, eight aircraft manufacturers, the U. S. Navy and Air Force. The Air Force has designated the airborne units as standard equipment on the Boeing C-97 and the portable-airborne units on the Fairchild C-119, Boeing B-29 and Douglas C-54. The B-29 and C-54 installations represent an important event. They signify the USAF's intent to retrofit older, four-engined aircraft with analyzers.

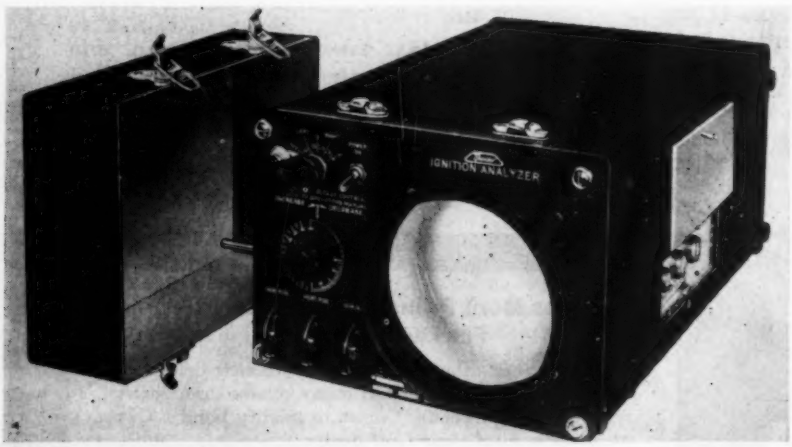
Similarly, the U. S. Navy will install Bendix Analyzers in the Martin P4M1 and Douglas R6D (DC-6) as airborne units and in the Fairchild R4Q1 (C-119) as portable-airborne installations.

Program is Rolling

The USAF has designated the Bendix analyzer for use in the test cells of all their overhaul depots; the Navy's Bureau of Ships has adopted it as a permanent installation in PT boats; several other uses are in sight. The program is rolling despite a slow start which dates back to 1945, when Bendix designed the analyzer for use by its own service personnel in isolating ignition difficulties.

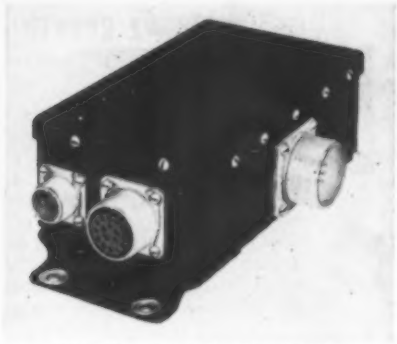
Production rate on the analyzers, long a major limiting factor in the company's sales effort, has reached 150 analyzers per month. Firm orders exceed 550 units, and actual releases to the shops (setting production in motion) have passed the 1,000 mark. Orders for almost 1500 additional units, now in the final stage of negotiation, should be a reality by the time this reaches print.

Internal company estimates, used to gauge work flow and made good in the year to date, indicate Scintilla will pass the $5 million mark in ignition analyzer business this year. This will represent the lion's share of the total analyzer business.



HEART OF THE IGNITION ANALYZER, the cathode ray tube, is housed in this assembly. The 11-3350 analyzer, slightly larger than other models, is 19.30 inches long, 7.69 inches high, 11.19 inches wide, and weighs about 25 pounds. One analyzer can serve a whole fleet of planes using the airborne installation.

RELAY AND RESISTOR BOX contains the units which make voltage control possible.



FILTER cuts radio interference.

The Bendix analyzer is an ignition analyzer, not an engine analyzer. It is not primarily designed to detect mechanical problems in the engine, is not equipped with vibration detection equipment.

The decision to concentrate on ignition rather than general engine troubles is a basic philosophy with Bendix. Other concepts include.

1. **Presenting the ignition patterns** from several cylinders on the scope at one time so that the mechanic can readily compare normal and abnormal patterns.

2. **Standardization of equipment** to provide an analyzer suitable for all types of aircraft and for ground, portable-airborne and airborne installations for both high and low-tension systems. This was related to a price policy, the realization that only through standarization can low prices be assured. It also provides the operator with interchangeability of equipment within his fleet, a point important to the airlines and even more critical to the military services.

Synchronizing Device

3. **Minimum weight and ease of maintenance.** This called for open-circuit wiring and a non-shielded analyzer. It dicated the design of a simple universal device for synchronizing analyzer indications to a known engine relationship.

4. **Insurance of the integrity** of the ignition system, regardless of possible analyzer malfunctioning or other circuit provisions.

5. **Provision for detecting** potential malfunctioning before it becomes evident by normal analyzer detection methods. This is provided by the voltage control circuits.

Heart of the analyzer is a cathode ray tube with a face five inches in diameter. The inside face of the tube is coated with a fluorescent material. Electrons released within the tube are shot against the fluorescent surface with the result that the point of contact "lights up." The high frequency and direction of this bombarding with electrons is such that it appears to trace an oscillating line on the tube face.

The shape of this trace is directly related to voltage applied to a set of vertical and horizontal plates in the base of the tube. One of these sets, the horizontal plates, are energized by a signal originating in the synchronizing breaker assembly mounted on the engine. This engine-driven unit interrupts current flow from the central power source to the cathode ray tube in such a manner as to signal the start of each engine cycle.

The vertical plates are energized by a signal taken from the primary circuit of the magneto. The signal strength reflects both primary and secondary circuit characteristics. The combined signals control the size and shape of the oscillating wave forms on the cathode ray tube which are directly related to ignition system operation.

There is a distinct wave form for normal operation of both high and low-tension ignition systems and there are distinct forms for any given type of trouble.

In operation, the analyzer traces the ignition patterns of all cylinders fired by a given magneto. A selector switch makes possible a switch from one engine to the other, one magneto to the other. There is no provision for selecting a given cylinder, say number 14 cylinder, for ignition analysis. The same effect can be readily achieved by spreading the patterns on the scope until the wave-form of the desired spark plug is isolated on the screen for separate study.

This has an important advantage in day-to-day operation. Normally, the mechanic or flight engineer does not have to switch from cylinder to cylinder in order to check for normal operation. Instead he has a complete set of patterns presented at once on the relatively large five-inch scope. If one or more patterns are abnormal, they stand out among the normal patterns. They can then be singled out for closer scrutiny.

Voltage Control

One of the unique features of the Bendix analyzer is the voltage control circuit. It provides a means by which the operator can bleed off any desired amount of ignition system voltage to the ground circuit. This reduces the voltage available to fire the spark plug. A plug which may be firing all right under optimum voltage conditions may break down under certain conditions or may be well on its way to malfunctioning. As voltage control is used to reduce system voltage, all plugs falter and cease firing at about the same values. Faulty plugs stop firing first, or continue to fire after the others have stopped.

Extra Section

By William D. Perreault

EVER get in one of those discussions about which transport airplane flies the fastest? If so you'll find the following compilation of interest. It was drawn up by the Research Department of the Air Transport Association and was the basis for computing available seat-miles in our story on the airline equipment situation in the last issue of AMERICAN AVIATION. Speed and available seats are the averages of all scheduled airlines operating the listed types of equipment during 1950. Newer types are based on present plane performance and engineering estimates:

Airplane	Speed	Available Seats	Daily Utilization	Daily Seat Mile Lift
Douglas DC-4	189.2	51.7	7.60	74,339
Lockheed Constellation	245.9	54.8	8.42	113,463
Boeing 377	256.8	69.3	5.87	104,463
Douglas DC-3	149.3	20.6	6.65	20,451
Douglas DC-6	246.5	51.7	7.95	101,316
Lockheed Lodestar	163.4	14.0	5.78	13,223
Martin 2-0-2	191.4	34.5	6.25	41,271
Martin 4-0-4	200.0	34.5	6.00	41,400
Convair 240	192.1	37.7	5.17	37,444
Convair 340	210.0	41.5	6.00	52,290

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Constructive attitude: In an American Airlines service letter warning maintenance employees about the importance of handling pilot complaints promptly and fully appears this statement: "Our primary objective is to operate with *safety;* being legal does not necessarily qualify us as being safe."

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At the request of several airlines, Ansul Chemical Company of Marinette, Wisc. conducted a series of tests with magnesium flares to determine the effectiveness of Ansul Met-L-X dry powder as an extinguishing agent in the event of accidental ignition of such flares. You should read their bulletin No. 27 covering this important matter. Typical findings: The flare case burns more slowly than the flare, making it necessary to approach the flare from the front slightly to one side to get effective results. Also, considerable velocity is necessary to penetrate the flame and reach the burning surface. A partly discharged extinguisher may not be adequate.

•

And from Trans World Airlines comes this information: Today's air traveler, flying at 20,000 feet altitude in clear air, has a maximum range of vision in all directions of 175 miles. The passenger's eyes can sweep a potential area of more than 96,000 square miles, or an area equal to the entire states of Pennsylvania, Massachusetts, Connecticut, New Hampshire, Rhode Island, Vermont, Delaware, Maryland and New Jersey.

•

Making an approach to Mitchell Field at Milwaukee, Wisc. recently, during a demonstration flight with a Lear Automatic Pilot and Approach Coupler for a group of USAF pilots, Lear's **Ed Conklin** noticed smoke pouring from the starboard engine. Letting the autopilot and approach coupler handle the landing, Conklin had a first-hand opportunity to show the pilots what the automatic equipment can do for a man even in an emergency. Emergency procedures were used and a "normal" landing made.

•

Vickers, Inc., major supplier of aircraft hydraulic equipment, has programmed a two-day Transport Aircraft Hydraulic Accessory and System Conference at the Hotel Sheraton in Washington for December 4 & 5. The meeting, sponsored by Vickers, will be chairmanned by EAL's Bob Stark, who did such an outstanding job with the hydraulic session at the last ATA Engineering-Maintenance Conference. In its own field, the program will attempt to do for hydraulics what Champion Spark Plug Company's clinics have done for ignition problems.

cooling America's high flying bombers and screaming jets is the specialty of AiResearch—most experienced in the world!

Cooling Power of Five Tons of Ice! *This midget refrigeration unit developed by AiResearch has the cooling capacity of 40 household refrigerators!*

Heat... is one of the toughest problems facing designers and builders of the new supersonic airplanes and missiles.

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These are critical cooling problems. America's best scientific minds are working to solve them. Airframe and engine manufacturers, electronic engineers and refrigeration experts must all combine their talents if continued success is to be achieved.

The most advanced cooling equipment can best be designed and built by a firm like AiResearch which pioneered this field from the beginning. Nearly every postwar U. S. airplane is equipped with AiResearch pressurizing units, air conditioning units or complete systems.

Here you will find complete research, testing and manufacturing facilities to help you solve your cooling and pressurizing problems in the supersonic field. And AiResearch is staffed by skilled engineers and craftsmen accustomed to meeting the challenge of the "impossible."

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Air Turbine Refrigeration • Cabin Superchargers • Gas Turbines • Pneumatic Power Units • Electronic Controls
Heat Transfer Equipment • Electric Actuators • Cabin Pressure Controls

AiResearch Manufacturing Company, Dept. C-11, Los Angeles 45, California

Industry Personnel

Salzman

Stoops

Charles C. Buckland has been made a vice president and head of a new subcontracting division for Minneapolis-Honeywell Regulator Co. while **M. P. Fedders** was named manager of aeronautical operations, **E. H. Salzman** was picked director of aeronautical administration and **Howard J. Stoops** was appointed director of aeronautical manufacturing.

Brig. Gen. Horace A. Shepard has become a vice president for Thompson Products, Inc. while **Maj. Gen. Frederick M. Hopkins, Jr.** has assumed a similar post with the Cleveland Pneumatic Tool Co. . . . **Joe Black** has been named director of contract administration for Grand Central Aircraft Co.

E. J. Huber has resigned as director of public relations for Piasecki Helicopter Corp. . . . **Frank E. Cristofferson** was appointed chief of experimental flight test for Northrop Aircraft Corp. . . . Westinghouse Electric Corp.'s new jet engine plant at Columbus, Ohio, will have **E. L. Smith** as works manager, **C. D. Heaton** manager of manufacturing and **John B. Roman** as works engineer.

Kaiser-Frazer Corp. has hired **B. M. Laney**, general superintendent of Willow Run during the war, as an aircraft consultant . . . **W. Dean O'Connor** has become head of Lockheed Aircraft Service's commercial department at Burbank.

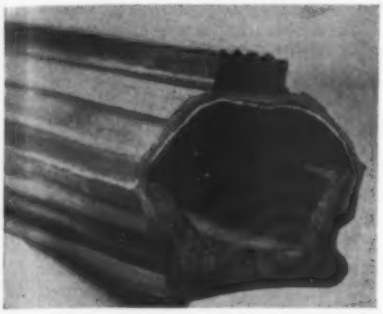
N. W. Bouley is the new assistant chief engineer-executive for Convair's San Diego division and will also continue temporarily as chief project engineer. **Kenneth W. Hutchins** has become manager of industrial engineering for Rockwell Manufacturing Co.

Consolidated Vultee Aircraft Corp. has appointed **V. G. Gillon** head of a new master planning section to help eliminate meetings when production changes are scheduled . . . Collins Radio Co. has selected **Max W. Burrell** director of the new procurement division.

Bouley

Burrell

New Products



Inflatable Seal

An inflatable strip seal suitable for use in sealing between the fuselage and canopy of fighter aircraft or between the fuselage and detachable cargo structures of transport aircraft has been developed by The B. F. Goodrich Company. Inflated with a few pounds air pressure, the special textile fabric, rubber-coated on both sides and vulcanized to a flexible rubber channel type base, expands to fill the opening. A high lift ratio provides for more clearance between the component parts when the seal is deflated. "Live" rubber is used to resist weather aging and the seal is designed to meet Air Force specifications for normal operation over a wide range of temperatures.

Address: **The B. F. Goodrich Company**, Akron, Ohio.

Tool Suspension Reel

Recently developed by the Wayne Pump Co. is a hose reel for installation over work benches or high-speed assembly lines called the Wayne Combined Tool Suspension and Air Supply Hose Reel.

A pneumatically operated screw driver or other tool hangs upon the hose which supplies its air, requiring no cable suspension. The weight of the hanging tool is counterbalanced by the spring tension of the reel installed overhead. Suspended tool permits the operator to direct his full effort to his work. It lifts automatically to a predetermined position out of the operator's way when he releases it.

Device is equipped with fifteen feet of ¼" I. D. hose with male-fitting standard. Rubber bumper stop is provided to control length of travel when tool is released. Universal mounting brackets permit mounting on post, wall, or hanging cable.

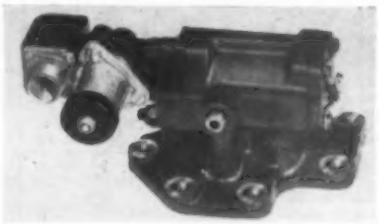
Address: **Wayne Pump Co.**, Fort Wayne 4, Indiana.

Pressure-Fuel Fittings

A range of pipe connectors, designed to replace AN fittings for the connection of large-diameter tubes of the type used in pressure fueling systems, has been developed by Flight Refueling, Inc. The terminal type of connector introduces tubes to tanks, pumps, and other accessories. Using the normal tank flange as the male half of the connection, the F. R. joint is said to be as much as 50% lighter than some methods now in use.

The connectors can be used with tubes carrying fuel, oil, hydraulic fluid, hot air, and other liquids and gases. They have been tested in accordance with existing AN requirements for fuel system components.

Address: **Flight Refueling, Inc.**, Danbury, Conn.



Selector Valve

Adel Division of General Metals Corp. has developed a new blower clutch selector valve for 2-speed supercharger control. The valve has only two positions and provides failsafe operation in the event of electrical failure.

Operated by engine oil pressure to high blower position, the valve has no electrical actuator, mechanical linkages or adjustments and is spring loaded to failsafe low blower position. Installation, servicing, and maintenance are described as simplified.

Address: **Adel Division, General Metals Corp.**, 10777 Van Oweb St., Burbank, Calif.

Portable Signal Flasher

A new electronic, portable signal flasher without moving parts or filaments is being manufactured by Haledy Electronics Co. Emitting a sharp, brilliant flash of light visible for approximately a mile, the lightweight flasher is of cold cathode tube design.

The light is housed in a splash- and rain-proof aluminum case measuring 6" x 6½" x 10". It uses a set of three standard 90-volt batteries in series and is controlled by an off-on switch as well as an outside knob to set number of flashes per minute.

Address: **Haledy Electronics Co.**, 57 William St., New York 5, N. Y.

Protective Coating

A new type of protective coating for aircraft which preserves both metal and fabric against corrosion and weather is being marketed by Van Dusen Aircraft Supplies. Known as SURF-PRO, the coating is a clear plastic which is sprayed on wings, fuselage and other parts of airplanes.

The plastic leaves a shiny, invisible film on the surface, which is said to be impervious to dirt and grime. Because grease and other dirt do not adhere to surfaces treated with the coating, the process of cleaning is made easier. One application is expected to last several years.

The new plastic is manufactured by Dodd Chemical Corporation, Little Ferry, N. J. and is distributed by Van Dusen. It was developed by Dr. Thomas N. Dodd, Jr.

Address: **Van Dusen Aircraft Supplies**, Eastern Division, Inc., Teterboro Air Terminal, Teterboro, N. J.

Domestic First Half Net: $49 Million

The 19 U. S. scheduled domestic trunk airlines showed a whopping big net operating income of $49,110,238 in the first six months of 1951 on $314,488,142 operating revenues and $265,377,907 in operating expenses, according to reports filed with the Civil Aeronautics Board. This compares with a net operating income of $13,573,323 in the first half of 1950 with gross revenues of $242,224,117 and expenses of $228,650,793.

The $49 million net operating income of the domestic trunkline carriers for the six month period was 261.8% greater than that for the same period in 1950 and was only $11 million shy of the all time record of $60 million earned in the year 1950. The Big Four —American, Eastern, United and TWA —accounted for almost four-fifths or 77.7% of the $49 million.

Only four out of the 19 companies reporting were in the red for the first six months of this year. Hawaiian Air Lines, which had an operating income of $25,050 for 1950, January to June reported operating losses of $115,470 for the same period this year while Northeast Airlines went from an operating deficit of $268,637 to net operating income of $88,367 this year. An outstanding example of improvement was Northwest Airlines which had a net operating loss of $477,621 in the 1951 first half compared with a loss of $4,478,246 in the comparable period the year before.

Total operating revenues of the trunks were up 29%. Passenger revenues reached a first half high of $272,078,576, a gain of 36% over the $199,333,695 attained the year before. Mail revenues were from $22,179,787 received in the first six months of 1950 to $16,845,682 for January to June this year, a decrease of 24%. It is significant to note that the carriers netted over $32 million in net operating income before mail pay.

Total operating expenses increased only 16% over the first half of 1950 while total revenues were improving 29%.

Domestic Airline Revenues & Expenses, January-June, 1951-50, Compared.

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES *	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NONSCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME
American *	$ 72,400,387	$ 63,190,698	$ 2,901,250	$ 1,534,304	$3,497,617	$ 642,965	$ 113,735	$ 55,297,951	$ 27,244,342	$ 28,053,609	$ 17,102,435
1950	49,816,974	42,403,830	2,688,018	968,638	3,014,193	544,422	61,076	44,637,405	21,700,098	22,937,307	5,179,569
Braniff	8,531,539	7,296,355	681,443	179,600	230,499	67,089	58,944	7,153,314	3,105,834	4,047,479	1,378,226
1950	7,436,440	5,849,084	1,136,820	155,079	177,245	58,496	58,626	6,843,713	3,180,686	3,663,027	592,727
Capital	18,556,838	15,620,824	1,023,543	479,662	554,977	93,233	477,622	17,008,988	8,105,235	8,902,754	1,548,850
1950	13,414,248	9,604,151	2,194,572	358,966	755,604	73,579	289,225	12,799,688	5,760,757	7,038,931	614,560
Caribbean	506,598	355,193	110,145	. . . .	13,184	3,662	3,855	424,589	171,783	252,806	82,011
1950	419,154	285,906	90,881	. . . .	15,344	2,006	5,021	418,774	182,127	236,647	380
C & S	5,312,774	4,518,171	528,874	100,494	98,680	40,398	3,643	4,998,051	2,201,343	2,796,708	314,723
1950	4,259,951	3,124,311	898,174	86,056	90,080	38,273	2,930	4,005,188	1,657,197	2,347,991	254,763
Colonial	2,346,125	1,691,299	591,683	19,127	18,922	11,483	5,651	2,438,302	1,055,214	1,383,088	-92,177
1950	1,826,914	1,243,390	518,448	15,334	19,970	9,593	1,336	2,182,345	987,588	1,194,757	-355,431
Continental	3,610,568	2,680,769	632,298	21,394	70,210	17,801	115,942	3,146,485	1,503,229	1,643,256	464,082
1950	2,866,790	1,783,215	934,886	18,766	55,383	16,034	25,763	2,849,424	1,317,329	1,531,595	17,366
Delta	12,757,899	11,309,012	472,889	185,953	377,831	160,346	197,609	10,356,146	5,077,828	5,278,317	2,401,752
1950	9,406,817	7,897,906	936,203	134,911	243,846	119,266	10,816	8,185,029	3,984,433	4,200,596	1,221,788
Eastern *	50,363,716	46,804,769	1,177,304	821,540	512,365	814,327	133,420	39,336,200	21,030,178	18,306,022	11,027,517
1950	40,199,596	35,887,711	1,641,700	650,063	1,269,343	620,917	49,702	34,793,394	18,547,016	16,246,378	5,406,209
Hawaiian	1,645,866	1,379,918	12,148	57,269	155,706	27,334	6,768	1,761,336	664,220	1,097,115	-115,470
1950	1,736,679	1,428,042	16,380	61,662	115,680	35,839	73,201	1,711,629	672,299	1,039,330	25,050
Inland **	1,598,827	1,211,856	333,046	15,738	24,882	11,373	77	1,377,196	607,313	769,883	221,631
1950	1,410,331	1,019,165	350,865	9,634	18,039	10,582	286	1,222,060	532,131	689,929	188,271
MCA ***	4,229,193	3,300,398	707,538	45,820	72,044	25,438	63,046	3,965,502	1,661,263	2,304,239	263,692
1950	3,779,287	2,810,464	809,412	39,396	56,092	26,011	21,394	3,508,359	1,423,944	2,084,416	270,927
National	14,162,336	12,308,013	774,287	83,471	510,582	230,349	84,418	10,321,506	4,933,391	5,388,115	3,840,830
1950	8,657,416	7,297,078	871,145	170,527	127,130	125,669	36,039	7,152,255	3,620,165	3,532,089	1,505,161
Northeast	3,289,225	2,330,578	790,855	42,780	53,210	9,099	10,403	3,200,858	1,412,395	1,788,463	88,367
1950	2,682,007	1,723,337	710,119	33,996	45,832	8,025	8,083	2,950,644	1,438,496	1,512,148	-268,637
Northwest	14,509,786	10,803,592	2,583,319	331,005	453,241	76,397	11,443	14,987,407	7,441,979	7,545,428	-477,621
1950	14,522,022	12,020,292	1,440,700	288,205	572,212	87,410	28,024	19,000,267	10,004,462	8,995,805	-4,478,246
Trans Pacific ****	523,168	383,376	19,653	2,770	7,907	4,486	93,176	601,884	228,744	373,141	-78,716
1950	367,940	274,250	. . . .	776	4,165	3,338	77,465	399,529	166,463	233,066	-31,589
TWA *	44,210,525	39,468,749	917,731	1,359,170	1,580,282	359,587	372,022	40,922,229	20,485,688	20,436,541	3,288,297
1950	31,868,980	26,514,982	2,727,893	855,726	1,178,453	306,652	156,852	30,211,745	15,078,610	15,133,135	1,657,235
United *	49,437,723	41,842,637	2,160,884	1,795,664	2,215,077	396,708	631,525	42,689,067	18,104,266	24,584,802	6,748,656
1950	42,342,181	34,625,201	3,351,237	1,237,602	2,281,079	347,052	169,827	40,858,704	18,169,252	22,689,452	1,483,477
Western **	6,495,049	5,582,369	426,215	75,537	90,887	35,484	98,611	5,391,896	2,386,610	3,005,287	1,103,153
1950	5,210,390	3,541,380	862,334	81,316	74,237	27,873	589,593	4,920,641	2,401,204	2,519,438	289,749
TOTALS	314,488,142	272,078,576	16,845,105	7,151,298	10,538,103	3,027,559	2,481,910	265,377,907	127,420,855	137,957,053	49,110,238
1950	242,224,117	199,333,695	22,179,787	5,166,653	10,113,927	2,461,037	1,665,259	228,650,793	110,824,757	117,826,037	13,573,323

* Large differences in mail revenues for January-June 1951 are due primarily to application of new mail pay formula for big four carriers which is reflected in second quarter 1951 financial reports to CAB. (Show Cause Order E-5560)

** Operations of Western and its subsidiary, Inland, should be considered as consolidated, although reports are filed separately as shown here.

*** Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case. Figures for route 106 are carried separately on local service airlines summary sheets.

**** Carrier authorized to transport mail May 15, 1951 (CAB Order E-5500, Docket No. 4986).

Airline People

ADMINISTRATIVE

Robert H. Herrnstein, Colonial's v.p.-comptroller, named acting head of the traffic department.

J. Warren Moore, who had been with Eastern Air Lines since 1934 and assistant secretary and treasurer and a director of the company since 1941, has joined Lever Bros. Co. as an assistant treasurer.

Robert M. Ruddick replaced **Malcom Smith,** on medical leave of absence, as United's public relations manager at Washington.

TRAFFIC & SALES

Norman Arnold is now general sales mgr. for Southern Airways. He was formerly sales and cargo mgr. for Piedmont.

Cooper

Harry J. Cooper, formerly New York traffic and sales mgr. for Trans-Canada, joined Scandinavian Airlines as ass't traffic and sales mgr. in Chicago.

Donald S. Getchell appointed Lake Central Airlines' traffic and sales manager and ass't to the general manager.

Walter Brown, Jr., ass't dir. of passenger sales for TWA, has become general sales mgr. for Ethiopian Air Lines.

Walter G. Conrad is in charge of American's new London office as European sales mgr. Formerly dsm at Toronto, he was succeeded there by **P. E. Priestman.**

Jose de A. Theriaga appointed Pan American d.t.s.m. for Portugal and Madeira. He succeeds **Pedro de Brito e Cunha** who has joined Avianca as manager in Madrid.

L. G. Wood promoted by United Air Lines from Akron city sales mgr. to dsm of newly created territory which includes Akron, Canton, Youngstown and most of Pennsylvania.

OPERATIONS-MAINTENANCE

A. Arnold, United's Detroit passenger service mgr. has transferred to Omaha in the same capacity. **Robert F. Wall** replaced Arnold in Detroit. **J. P. Goldsmith** is now eastern operations manager for The Flying Tiger Line with headquarters in Newark.

S. W. Chambers appointed dist. operations mgr. for TWA at Frankfurt, Germany, replacing **Bryon G. Jackson** who becomes ass't station mgr. at Chicago. **C. E. Duffy** replaced **C. E. Spicer** as Bombay dist. operations mgr. Spicer is returning to the States for reassignment.

Robert L. Souers named Flying Tigers eastern division chief pilot.

New Services

United Air Lines has canceled its plans to start three-class Stratocruiser service in October between Los Angeles, San Francisco and Seattle/Tacoma. Shortage of Stratocruiser equipment, caused by recent loss of one of the planes in an accident, was given as the reason. UAL had planned to charge regular fare in the main cabin, extra fare for the stateroom, and tourist fare for the lower deck lounge.

U. S. Airlines, certificated freight carrier, reinaugurated service Sept. 19 on its New York-Miami route. Service had been temporarily suspended during a reorganization of the company's management. Southbound flight departs Newark at midnight, arriving Miami at 7 a.m. Northbound schedule leaves Miami 5 p.m. arriving Newark 11 p.m.

Northwest Airlines was scheduled to inaugurate Stratocruiser service between Twin Cities and Washington on Sept. 30. Westbound flight leaves Washington at 6:30 p.m., stopping at Detroit and Milwaukee, arriving Twin Cities at 11:07 p.m. Eastbound trip departs 7:30 a.m., arriving 1:45 p.m.

CAB Calendar

Oct. 1—(Docket 4882 et al.) Hearing in the New York-Balboa Through Service Proceeding. Tentative. Examiner T. L. Wrenn.

Oct. 2—(Docket 4656) Hearing in Houston-New York Interchange Case (TWA/Chicago and Southern). Tentative. Place and hour to be announced. Examiner William F. Cusick.

Oct. 8—(Docket 4542 et al) Hearing in Twin Cities-West Coast Through Service Case (Western Air Lines, et al.). Casper, Wyoming. Examiner William J. Madden. (Note: To reconvene in Washington, D. C. October 17).

Oct. 9—(Docket 3949) Hearing in Argonaut Airways Individual Exemption Case. Tentative. Examiner Richard A. Walsh. Postponed from September 24.

Oct. 10—(Docket 3910) Hearing in Trans-National Airlines Individual Exemption Case. 10 a.m., Room E-210, Temp. Bldg. 5, Washington. Examiner Barron Fredricks. Postponed from September 10.

Oct. 15—(Docket 4985) Hearing in El Al Israel Airlines Limited Foreign Permit Amendment Case. 10 a.m., Room E-210, Temp. Bldg. 5, Washington. Examiner Barron Fredricks.

Oct. 17—(Docket 4542 et al.) Hearing resumed in Twin Cities-West Coast Through Service Case (Western Air Lines, et al.) Washington, D. C. Examiner William J. Madden.

Oct. 22—(Docket 4850 et al.) Hearing in New York-Chicago Cartage Investigation. 10 a.m., Room 5859, Commerce Bldg., Washington. Examiner J. Earl Cox.

Oct. 23—(Docket 3915) Hearing in Regina Cargo Airlines Individual Exemption Case. Tentative. Examiner Herbert K. Bryan.

Oct. 26—(Docket 4902) Hearing in investigation of Consolidated Flower Shipments, Inc.—Bay Area. Tentative. Examiner Richard A. Walsh. Postponed from September 26.

Airline Commentary

By Eric Bramley

WHILE talking the other day with a top government aviation official, we touched on the subject of airline service. He said he'd heard plenty of complaints, but then he added:

"If more passengers took more care about getting their space and tickets, there wouldn't be nearly as many complaints. A lot of people let things go until the very last minute and then squawk at the airline because they don't get space on the flight they want and don't get handled properly. If people took the same care in getting their airline space as they take in getting tickets to their favorite football games, most of the troubles would be solved."

Ain't it the truth!

•

Several weeks ago, we are informed, Delta Air Lines' flight 842 was one minute late arriving Jacksonville and departed that station on schedule. There's nothing unusual about that—practically routine. But one small item arouses interest. The pilot was Jim Scarbrough, and during the Jacksonville stop Jim got married. Yessir, he was met in Station Manager Dean Brown's office by the bride-to-be and a justice of the peace. The words were spoken and the knot was tied. In case you're checking, the timetable shows a 20-minute stop at Jacksonville, but you have to subtract one minute plus time to get into the station and out again, which means you haven't got a whole lot of time for a wedding. Our sources failed to tell us whether the bride accompanied Jim on the rest of the journey.

•

We have been reading an interesting article that was published in *Hotel Monthly* in 1919, entitled "Hotels in the Sky." The writer made some predictions 32 years ago regarding flying hotels and we thought you'd like to see how well he came out:

"The writer visions a machine about 16 ft. wide by 100 ft. long, with propellers, wings and stabilizers, and devices for producing and regulating movement in the air as free as that of a bird. The machine will speed from one to two hundred miles an hour and girdle the earth in less than 14 days. This machine will have lungs that will breathe almost as a human being breathes, drawing oxygen from the air for its heart action. It will have a stomach for transforming a very small amount of fuel into great energy . . .

"We see this machine with rows of bedrooms extending along both sides the length of the ship, and we see the dining room where foods in containers that keep them hot or cold are automatically brought to the table in front of the diner at the touch of a button . . . We vision the wireless telephone; also the wireless telegraph . . . We also vision a promenade deck extending entirely around the body of the ship, the floor of glass, so that a bird's-eye view of earth and sea is afforded . . .

"We observe the devices for temperaturing, so that even in the very cold atmosphere of the clouds there is comfort within the ship. We vision the announcements of aerial routes as 'San Francisco to New York, 24 hours,' and 'Chicago to Paris, 36 hours' . . .

"The Twentieth Century Limited represents perhaps a quarter of a million dollars to produce the train, and about $20 million to build its track from Chicago to New York. Several carrier airplanes, when they get standardized, may be built for a quarter of a million dollars, and there will be no expense for roadbed. The fuel expense will also be less as compared with train travel. And air travel will be just as safe as train or boat."

•

Members of United Air Lines' publicity department, somewhat chagrined by the company's code system which labels their craft as "PU," take comfort in the initials which designate passenger service employees at Burbank, Calif. The latter are identified as BURPS.

AF Defends Its Take-Over of Civil Airports

Users say they'll be hurt, but military claims law directs it to recapture the fields.

THE continuing Air Force program of "recapturing" civil airports under Public Law 289 in order to provide for its "95-wing" expansion is causing consternation in some quarters and whole-hearted approval in others—depending upon how the program is viewed.

The law, as amended in 1947 provides for disposal of government surplus airports, most of them built for Air Force wartime use. It provides:

- **The airports can be sold** to states, counties, and cities for public use if a need for such airports can be demonstrated.
- **The airports must be made available** to the Air Force in time of national emergency, should they be considered essential to national defense.

Since current Air Force expansion constitutes a necessary part of the national security, the "need" shown by the civilian purchasers at the end of the war now becomes of secondary importance, as the Air Force proceeds to invoke its legal right of recapture.

Civil aviation "needs," however, have skyrocketed since the time of many of the original sales. Since 1947, for instance, cargo ton mileage has increased 57%, while revenue passenger-miles have gone up 23%. So far, all reports are not in, and it remains to be seen to what extent civil aviation will be disjointed by the increasing Air Force encroachment.

Of particular concern to civil aviation proponents are the approximately 30 airports, classified as high traffic density airports, which accommodate more than 50% of the nation's air traffic.

Those who believe that lowering the efficiency of these key airports, some of them international terminals, would adversely affect the corporate health of U. S. aviation, view with misgivings the Air Force's forays in their direction. Already military aircraft operations average an estimated 17% of total traffic on high traffic density airports, and these operations are increasing.

Although the legal right of the Air Force to recapture these and other airports has never been questioned, still the "national-defense" motive has been viewed askance by those who believe it unwise, when considered from a standpoint of over-all national welfare, to tamper with the delicate balance of U. S. civil air economy. It has been argued that the Air Force should be able to find airport facilities near the high-traffic cities without encroaching upon the already-strained civil facilities.

Use Panel Mediates

Mediator in the cross purposes of the Air Force and some civil aviation groups has been the Airport Use Panel of the Air Coordinating Committee. The Panel, consisting of CAA, CAB, Air Force, and Navy representatives, the Civilian Components Policy Board, and airport management, has had thorny problems thrust upon it this year. In spite of what is considered a reasonable approach, the Panel has not in every case been able to resolve all of its problems to the complete satisfaction of the parties in conflict.

In addition to mediation in Wichita, Lake Charles, La., West Palm Beach, the Twin Cities, and Indianapolis, the Panel has helped dissipate many problems through conferences in Washington, where most of the members are based. The Panel has been able to help negotiate joint use between military and civil where first plans called for exclusive military use.

Although the Panel is not empowered to act for or to commit the Air Coordinating Committee, it is responsible for:

- **Advisory recommendations** to the ACC in airport matters coming up between the military and civil agencies.
- **Coordinating activities** of the agencies represented on the Panel with regard to airports.
- **Providing a central point** where airport information may be exchanged and where problems involving more than one agency may be introduced for policy formulation and later ACC action.

The Airport Use Panel has determined that, as a matter of broad policy, there is no inherent hazard in mixing all types of airplanes, both civil and mili-

The 'Recapture' Score to Date

Airports "recaptured" by the Air Force since July 1, 1950 under provisions of Public Law 289. Use of the phrase "Air Force Base" in the title indicates that the Air Force has jurisdiction over the airport. Where AFB is not used, other arrangements have been made for joint civil-military use.

Alexandria Air Force Base, La.
Amarillo Municipal Airport, Tex.
Big Spring Municipal Airport, Tex.
***Parks Air Force Base, Pleasanton, Calif.**
***Camp Wolters, Mineral Wells, Tex.**
Geiger Field, Spokane, Wash.
Lake Charles Municipal Airport, La.
Niagara Falls Municipal Airport, N. Y.
Oxnard-Ventura County Airport, Oxnard, Calif.
Paine Field, Everett, Wash.
Peterson Field, Colorado Springs, Col.
Pinecastle Airport, Orlando, Fla.
Portland Municipal Airport, Ore.
***Sampson Air Force Base, N. Y.**
Suffolk County Airport, Westhampton, N. Y.
Truax Field, Madison, Wis.
Stead Air Force Base, Reno, Nev.
Morrison Field, West Palm Beach, Fla.

**Indicates former Army or Navy installation.*

Airports activated by the Air Force since July 1, 1950 to which the Air Force have no "recapture" rights.

Burlington Municipal Airport, Vt.
Grandview Airport, Kansas City, Mo.
McGhee-Tyson AFB, Knoxville, Tenn.
Newark Intransit Depot, N. J.

Airports on which work toward activation by the Air Force following "recapture" is in progress.

Altus Municipal Airport, Okla.
Ardmore Airfield, Okla.
Charleston Airfield, S. C.
Hammer Field, Fresno, Calif.
Harlingen Valley Airport, Tex.
Miami International Airport, Fla.
Loredo Municipal Airport, Tex.
Lincoln Municipal Airport, Neb.
***Raleigh-Durham Airport, N. C.**

Airports in process of activation by the Air Force to which the Air Force have no "recapture" rights.

Foster Field, Victoria, Tex.
***Friendship International Airport, Baltimore, Md.**
Sedalia Air Force Base, Knobnoster, Mo.
***Portsmouth Municipal Airport, N. H.**
Laughlin Field, Del Rio, Tex.
Kinross Auxiliary Base, Kinross, Mich.

**Plans not yet resolved.*

tary at a single airport, provided that adequate traffic patterns and proper air traffic control facilities and procedures are established.

Exceptions to this exist where:

- **Highly congested terminal areas** are under consideration.
- **Special military operations** do not permit use of normal traffic procedures and control.
- **Military security requirements** necessitate exclusive Air Force use.

The Air Force is committed to proceeding upon a policy which envisions extensive joint use wherever this is feasible.

Col. Lewis P. Ensign, USAF, deputy to the assistant for air bases, foresees the establishment of machinery which could move at once to make U. S. airport facilities almost instantly available to the military.

Col. Ensign points out that extensive improvements are contemplated by the AF upon recaptured airports. In many cases, runways will be lengthened to accommodate modern heavy bombers and jet fighters. These improvements, he said, will permit immediate civil use of turbojet and jet transports when they are put into general use.

As to the present situation, Air Force view is that, regardless of "inconvenience" to airport owners and of even the desires of AF policy makers, Public Law 289 specifically *directs* the Air Force in time of emergency to recapture the airports.

Qualification to Purchase

Further, the current program is defended with the reminder that the recapture stipulation was a distinct and explicit qualification to the original purchase agreements. Some airport owners, Air Force officers claim, did not bother to inform some of their tenants of the clause in their contracts permitting AF return. Consequently, some tenants now being evicted by the Air Force can sue the civilian "owners."

Building of new facilities wherever they are needed for exclusive AF use would, of course, be prohibitively expensive, and the Air Force claims that it is simply trying to do its job with minimum inconvenience.

Col. Ensign points out that if a reasonable lease can be arranged with the civilian owners, the AF is just as willing to enter into such an agreement with them. In every case, he said, even when airports are bought outright by the AF, the owners are still paid fair rental on investments they have made in improving the property. Sometimes, in efforts to keep owners happy, the Air Force has paid for "improvements" when a strict interpretation would call them only "maintenance."

Airport News Digest

Coup for Denver: With revenue bond financing becoming in many instances the only remaining means by which cities can finance construction of airport terminal buildings and hangars, the success of the City of Denver in selling $1,750,000 of revenue bonds to help finance the terminal development program at Stapleton Airfield became headline news. The bonds were sold to a syndicate headed by Harriman Ripley & Co., Inc., and the B. J. Van Ingen Co., Ltd., of New York City, and were thought to be the first major airport revenue bond issue to be sold solely on the basis of revenues anticipated from the facilities to be constructed.

Sale of the bonds enables Denver to go ahead with its $3,079,069 terminal expansion program, aided by available city funds of $294,500, Federal-aid grants total more than $1,000,000, and $70,000 in advance rentals has been promised by United Air Lines. The feasibility report used by investment bankers in appraising the bond issue was prepared by James C. Buckley, Inc., terminal and transportation consultants. Copies may be obtained by addressing them at 331 Madison avenue, New York 17, N. Y.

Golden Harvest: **Increased traffic at airports has made the lowly phone booth, once a very minor source of revenue, into something akin to a bonanza. For example: the 17 pay phones at San Francisco International Airport are now averaging a "take" of about $3,200 per month, of which the airport gets 15%. With 64,000 nickels a month being put into the 17 phones, the coin boxes fill up so quickly that they have to be emptied every three days. Better take another look at the pay phones at your airport. Are there enough of them, and are they properly located?**

ADMINISTRATION BUILDINGS

- **Lobby and office tenants** have begun moving into new administration building at New Bedford (Mass.) Municipal.
- **Construction has started** on a small expansible administration building at Owosso (Mich.) Airport.
- **New terminal at Waco** (Tex.) Municipal has been dedicated.
- **A $100,000 bond issue** to finance construction of a new terminal and control tower at Medford (Ore.) Municipal is being proposed. A bond election may be held this fall.
- **New $200,000 administration building** at Massena (N. Y.) Municipal has been formally dedicated.
- **Architectural plans** for $4,000,000 terminal building expansion at Cleveland Hopkins Airport are about completed.

RUNWAYS, OTHER PAVING

- **Improved 5,000-ft. runway** at Muskegon County (Mich.) Airport is now in use. Strip is 150 feet wide and is blacktopped.
- **Paving is to be started** shortly at new Raleigh County Memorial Airport, Beckley, W. Va., where first stage construction has been completed.
- **Contract has been let** for paving of a 3,000 foot runway at Columbus (Nebr.) Municipal. Cost will be $71,130.
- **Project has been approved** for 1,000 foot extension of one turf runway at Mt. Pocono (Pa.) Airport. Blacktop will be applied later.
- **Contract has been let** for surfacing of an access road at Owensboro-Daviess County (Ky.) Airport.

MISCELLANEOUS

- **A $119,998 contract** for installation of high intensity runway lighting and medium intensity taxiway lighting at Scranton-Wilkes-Barre (Pa.) Airport has been let.
- **One of three proposed sites** for a new and larger municipal airport at Toledo, Ohio, has been approved by CAA.
- **Mayors of communities** in northern New Jersey have recommended establishment of another airport away from the Newark area for use of heavy transport aircraft.

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Congress Considers GI Training Extension

Teague proposal expected to help flight training, but administration bill calls it avocational.

OUT of the 15 or 20 bills proposed to extend G. I. Bill educational benefits to veterans in service since the beginning of the Korean war, June 27, 1950, informed observers report that only two will merit serious consideration in Congress.

The first of these, known as the "Administration Bill" was introduced in August in both House and Senate.

These bills S. 1940 and HR 1540, though similar in most aspects to the original G. I. Bill, offer several revisions. Flight training programs are expected to suffer from the changes.

- **Training, the bill recommends,** should be limited to men 23 years old and younger, on or after July 27, 1950.
- **Veterans over 23** may qualify only if they furnish proof that their military service interrupted their educations.
- **Avocational and recreational training** will be prohibited. *Flight and glider courses are specifically listed in the bill as avocational and recreational.*

Based on Year's Study

A second bill, being drafted by the House Select Committee Investigating G. I. Educational Programs, known as the Teague Committee, is based on a year's study of G. I. training.

Among items Congressman Teague plans to include in the legislation are:

- **Training available to all veterans** in service on and after July 27, 1950, regardless of age.
- **Elimination of** the massive government machinery needed to audit and inspect present programs by cutting out subsistence checks and decreasing financial assistance from a government subsidy to a government assistance program to require of the veteran an investment of his own money and initiative.

Past experience has shown several glaring defects in the original G. I. Bill which enabled veterans to become "professional school-goers" and allowed schools to profiteer on veteran training.

A warmed-over version of such legislation offers the aviation schools a meager supply of veterans and specific discrimination against their obtaining flight training.

The Teague bill promises, on the other hand, an entirely new approach to the problem.

Flight schools are strongly rapped by a provision of the Administration Bill which reads: "The Administrator (of the Veterans' Administration) shall refuse approval to any course elected or commenced by a veteran which is avocational or recreational in character. The following courses shall be presumed to be avocational or recreational in character:

"Dancing courses; photography courses, flight and glider courses; bartending courses; personality-development . . ."

Though a loophole is apparent when the bill states that a veteran may obtain training classified "avocational" by submitting complete justifications that such courses will contribute to bona-fide use in his present or contemplated business, few students will be able to furnish such documentary evidence.

Must Have Non-Vets

Another clause which may affect flight schools is a provision which requires that profit-operated schools must have at least 25 "equivalent students" or 1/3 of their enrollment—whichever is the larger—in non-veteran students. Also, the schools must appear on lists submitted by the individual states to the Veterans' Administration.

Under the Administration bill, veterans may receive the same subsistence benefits, which run up to $125 a month, plus one-half of their tuition, up to $300 a school year.

Full tuition, up to $600 a school year, is available to the veteran if he does not request subsistence benefits. Correspondence courses are also paid in full for him without subsistence benefits.

Details of Teague Bill

The Teague bill will definitely appear on the agenda of the 82nd Congress in its second session.

Many favorable items will be at once apparent to flight school operators when they examine this legislation.

Under the Teague bill, veterans will be given complete freedom of choice in what courses they desire, where they obtain them, and to what use they put the education or training.

No regulations will govern the schools through V.A. contracts and government red-tape other than straight-forward requirements that a school shall charge veterans the same tuition as non-veterans and prove that they are not strictly "veteran-schools."

To avoid cultivation of the professional veteran school-goer, who finds the $120 a month for 100 hours of school attendance more profitable and less tiring than working, the new bill will endeavor to lend assistance rather than complete subsidy to the veteran who desires education or training.

This will be done by means of a certificate, or check, which cannot exceed $75 or $80 a month, to cover tuition, equipment and supplies—small overages to be used are partial subsistence. The veteran will thus be forced to put in his own money and initiative to obtain full-time training or to buy expensive courses, such as flight training. However, the monthly certificate will be of material assistance to him.

About two-thirds of the cost of a commercial pilot certificate and ratings could be covered by the veteran's entitlement.

No cash refunds will be made if the veteran drops out of a course. Instead the student will lose the two-to-four month block of certificates which he surrendered to the VA to serve as authorization to pay the school. This clause is aimed at discouraging "course-hopping" and poor attendance.

Flight schools will appreciate, as well, the elimination of non-aviation-educated supervisors and inspectors and the previously required reams of government forms and rulings.

No Red Tape

Taxpayers will benefit from the greatly decreased government administrative expense which should result when school contracts and supervision, and subsistence claims are eliminated.

Flight training, in the Teague bill, will come under a "part-time training" classification. This means that the student, to obtain flight courses, must surrender to the V.A. a certain number of certificates, with which the administrator will purchase training for him at the school of his choice, and will receive no subsistence.

Under "full-time training" in colleges, etc. a veteran receives a monthly certificate which covers tuition, supplies, equipment and a small slice of subsistence.

A day-for-day basis will be used to determine the amount of training a veteran may receive. Under the original GI Bill, and the proposed Administration Bill, a veteran serving over 90 days could request a full year's training, and those serving under 90 days, none at all. The Teague bill gives veterans a day of education or training for each day of service.

A maximum eligibility will probably be set at 36 months of education instead of the 48 month maximum cited in the original bill and in the proposed Administration G.I. Bill.

The Washington View

By Vera Foster

THE requirement that private pilot applicants must take their written examination from a CAA agent or CAA office is hurting business, flight school operators assert. Though operators like the new written exam itself, as well as the new flight test which also went into effect August 1, their students are finding it most inconvenient to get away during week day working hours to take the exam.

CAA officials point out that both methods of giving the exam—by CAA agents, and by flight instructors—has been tried several times. Statistics have shown *no failures* of tests under the latter system! Since instructors are required to turn in good records to hold jobs, CAA feels that a disinterested person could better maintain the security of the exams and make the tests actual examinations of competency.

Weekend and evening arrangements can be made with CAA agents in order that applicants may take writtens with a minimum of inconvenience, Washington headquarters of CAA tell us.

•

Those private pilot discussion groups, which the CAA is promoting, actually pay off. It has been noted by insurance companies and operators that flying clubs which hold regular meetings have excellent safety records.

With CAP and Air Reserve units about, leadership for the groups should not be too difficult to find.

•

It won't be long before complete blueprints of the AG-1 agricultural plane, built by Texas A & M College with CAA funds, will be available to manufacturers and operators.

Latest reports indicate that the plane is already 95% committed to blueprints. Most modifications are expected to be made in the ship's dispensing equipment after experience and comments, derived from the AG-1's shakedown and demonstration tour, are studied.

CAA reiterates its intention of making no copies of the plane. "The prototype is intended to serve manufacturers and operators as a source of ideas," a CAA spokesman asserted. "Manufacture of additional ships would be pointless."

•

W. T. Piper, president of the Piper Aircraft Corp., has had a busy month. Fifteen of his Super-Cubs have been rented to the Army Reserve for use during summer encampment; three more Piper spray planes are on their way overseas as part of a Point IV program; and Mr. Piper himself delivered a plane to a Long Beach, California, customer. The buyer wrote that he had long wanted to meet Mr. Piper.

•

In the event of declared war, two-way radio sales should zoom. With the new ADIZ areas to go into effect this fall, all flights in these areas over 4,000 feet above the terrain will be required to have such equipment; in event of war, all planes out of sight of their airports must carry two-way radios, regardless of altitude.

Owners are installing sets now, remembering the difficulty they had in obtaining such equipment during the last war.

The Federal Communications Commission reports about 28,000 two-way radios installed in personal aircraft. According to CAA figures, about 57% of the nation's personal aircraft are without radio equipment of any kind. Let's hope that a lot of that 57% "without" falls into the 30,000 inactive plane category and the 43% "with" are in the 60,000 active personal planes.

•

An active interest in flying clubs has been indicated by the rapid sale of CAA's Flying Club booklet published early this year. The booklet sold out and has been reprinted. As of today, a total of 866 of the 15-cent booklets has been sold by the Government Printing Office.

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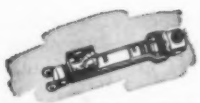

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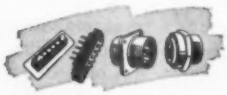

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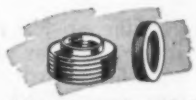

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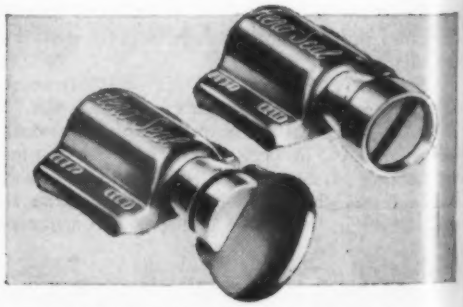

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Monroe-Atlanta
October 23, 1939

L. L. "Luke" Caruthers
Delta Air Lines
Monroe-Atlanta
October 23, 1939

Al E. Key (QB)
Key Bros. Air Service
Meridian, Miss.
October 23, 1939

Fred M. Key (QB)
Key Bros. Air Service
Meridian, Miss.
October 23, 1939

E. W. "Stan" Ford
Birmingham Aero Club
Birmingham, Alabama
October 23, 1939

F. J. "Fritz" Schwaemmle (QB)
Delta Air Lines
Atlanta, Ga.
October 23, 1939

Milton Jones
Delta Air Lines
Atlanta, Ga.
October 23, 1939

J. H. "Red" Bondurant
Delta Air Lines
Atlanta, Ga.
October 23, 1939

Tip Schier
Delta Air Lines
Atlanta, Ga.
October 23, 1939

Charles W. Carneal
Eastern Air Lines
Atlanta-Newark
October 23, 1939

H. C. "Hank" Morely
Eastern Air Lines
Atlanta-Newark
October 23, 1939

BOEDY'S ALBUM

George Mason
Pennsylvania-Central Airlines
at Paterson, N. J
October 24, 1939

T. B. "Tom" Rhines
Hamilton Standard Propellers
at PAA New York City
October 27, 1939

Charles J. Kratovil (QB)
Transcontinental & Western
Air at Newark QB Meeting
October 27, 1939

R. P. "Bob" Hewitt (EB-QB)
Eastern Air Lines Inc.
Newark-Washington
November 2, 1939

Allan W. Olson
Dixie Airways
at Washington D. C.
November 3, 1939

Grace Toomey
(Mrs. H. W.)
at Washington, D. C.
November 4, 1939

E. M. "Max" Marshall
Eastern Air Lines
Washington-Newark
November 4, 1939

Jack Graham
Eastern Air Lines
Washington-Newark
November 4, 1939

Jas. H. "Scotty" Waugh (QB)
Remington-Rand
New York City
November 6, 1939

E. T. "Ed" Gray
at NY QB Meeting
Murray Hill Hotel
November 6, 1939

Deane Dana (QB)
NY Life Insurance
New York City
November 6, 1939

Tracy Richardson (QB)
at NY QB Meeting
Murray Hill Hotel
November 6, 1939

W. T. "Dick" Dickinson
Douglas Aircraft Co.
at Paterson, N J
November 7, 1939

Josephine Murphy
American Airlines
Newark-Boston
November 7, 1939

Albert J. S. Olson
Boston & Maine Airways
East Boston, Mass
November 8, 1939

Barbara Groff
American Airlines
Boston Newark
November 9, 1939

IN FLIGHT

A PAGE FOR ALL PILOTS

To Prevent, Not to Punish

LAST year, during fiscal 1951, there were 2,695 violation reports filed by CAA agents. The violations span a wide assortment of infractions ranging from flying without a license to flying on instruments without the appropriate rating.

Of the reports filed, 2,252 violations were pilot offenses. This means that your chances, as a pilot, of being charged with violations are pretty good. CAA feels it's to your best interest to know a little about these violations, what's done about them and how you can best protect your interests.

A look at the pilot categories responsible for these violations might be in order. Take fiscal 1951. The 2,252 pilots involved in such matters included:

	Violations
Student Pilots	247
Private Pilots	1060
Commercial Pilots	621
Air Transport Ratings	251
Uncertificated	73

CAA tells us that in quite a few of the cases of uncertificated pilots, strange as it may seem, the offenders are people who have never held a rating.

The penalty for violating Civil Air Regulations can include revocation or suspension of the offender's certificate and/or civil fines up to $1,000 per offense. Actually only slightly over 25% of those violating CAR end up paying fines. During fiscal 1951 the record looked like this:

	Violations
Memo for file	160
Filing for record	452
Reprimand	853
Voluntary surrender of certificate	29
Collection of civil penalty	565
Complaints filed with CAB	722
Civil penalty and complaint	7

The government picks up a little pocket money from civil fines. Last year it amounted to $91,475 from all types of violations. This was more than double that collected in 1950, was triple that of most years. But—and this is a big but—pilot penalties showed little change. Major reason for this sudden increase were two fines imposed on irregular air carriers, totaling $20,000, for repeated violations. Incidentally, there were 69 violations charged against scheduled air carriers and 124 against irregular air carriers in the same period.

Let's take a quick look at the other CAA certificated airmen:

	Violations
Mechanics	42
Radio Operators	2
Dispatchers	4
Parachute Tech	2
Repair Stations	6

Those actions by CAA, listed down through voluntary surrender of certificates, would not appear to work much real hardship on pilots. Beyond that point it seems worthwhile to investigate the pilot's position. This is best handled by looking at the reasoning behind civil fines and penalties and CAA's policy toward them.

In a bulletin entitled "Enforcement Policy," the CAA Administrator offers this advice to the agents:

"We will be guided by the principle that we seek to prevent safety violations, not to punish violators."

If followed, this would appear to be an eminently fair proposal. Let's look at CAA's method of reporting and acting on violations:

Violations, in the case of pilots, are generally reported by CAA's operations agents in the field. The agent writes up a report of an alleged violation and accompanies it with suitable evidence and recommendations. **Prior to forwarding** this to the regional CAA office, he must first check with the pilot, ask his comments on the violation and determine whether or not an actual violation has taken place.

Reviewed and Re-reviewed

If the agent still feels there has been a violation, he forwards his report along with the pilot's comments to the regional office headquarters. Handling from this point on is determined by the type of pilot involved. Non-airline pilots have their violations handled on a regional level by top men in CAA and CAB's regional structure. All violations by scheduled airline pilots are handled in Washington.

Prior to forwarding a report to Washington, the regional headquarters has the opportunity to reject the report, require additional information and add its recommendations for action. When the report reaches Washington, if it does, it is reviewed by a four-man CAA-CAB committee. This committee is directed to determine if a violation has occurred, if so, whether or not the violation should be punished, and the nature of the penalty.

Cases of the private and non-scheduled air carrier pilots are handled in a similar manner on the regional level or, if required, can be transferred to headquarters in Washington.

If collection of penalties is anticipated, CAA sends a letter to the pilot. This letter relates the nature of the offense, the possible civil fines and a proposed compromise authorized in the Civil Aeronautics Act. The pilot is specifically informed that, prior to paying the compromise penalty, the CAA would welcome additional information which might have a bearing on the case. He is also told that, if he does not care to accept the compromise proposed, and does not present information which clears him, his case will be turned over to the Federal Courts for handling.

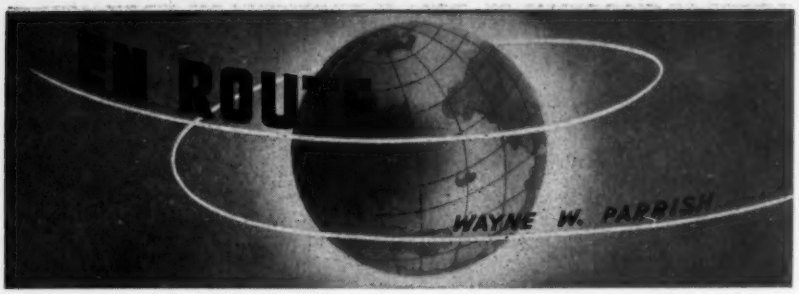
During fiscal 1951, only $11,575 of the $91,475 collected in civil fines were collected by the courts.

Not 'Pressurized'

CAA feels that in some cases the pilots may actually feel they are being "pressurized" by the apparent power of the Federal Courts. Yet CAA's procedures appear to give the pilot or any other offender every opportunity to make himself heard. The procedures are filled with checks and double-checks by CAA and CAB, aimed at preventing needless charges of violations.

Another impressive factor: Case histories of pilot violations show that when an airline or other company can show that they have taken corrective action, either in the form of a penalty or in the form of training aimed at preventing possible recurrence of the offense, CAA has withdrawn the civil penalty or reduced the sum requested.

Finally, after the case has been turned over to the courts, the offender can still make a compromise settlement without having his case brought to trial.



Siam. You either like **Siam** or you don't. There's no middle ground. My first 24 hours in **Bangkok** were far down on the negative side and I switched the original plans for a week's stay to a mere three days. I had looked forward to Bangkok more than any other spot on the trip; the let-down was pretty rough.

But I began liking the place the second day. And by the time I departed I was genuinely sorry I hadn't kept to the initial plan. All of which points up the fact that many trips are spoiled by getting into a poor hotel. The second day we moved to the **Oriental Hotel,** and let me recommend this hostelry above all others in Bangkok. Not that it's first

class,—it isn't, but it's the best there is and you can get by in it very nicely.

The **Oriental** is a three-story hotel built in a U shape facing the wide, fast-moving **Chao Phya River.** There are few more fascinating places in the world at sunset than the terrace of the Oriental Hotel overlooking the river traffic. Odd-looking boats and sails of all kinds, including ocean-going ships, compose a panorama that becomes a little unreal as darkness creeps up. There are plenty of mosquitoes but you can get used to them—they don't bite like the ones we have out on the river bottomland of the midwest.

✦ ✦ ✦

For Tall People. The hotel wasn't built all at the same time, so it's a hodge-podge. Ceilings are high and rooms are open at the top to provide as much ventilation as possible. It can be mighty hot in Bangkok. Our room was about the strangest I've ever been in. It was an absolute square and the ceiling was at least 25 feet above the floor, something on the order of two and a half times the height of the usual hotel room. The bathroom occupied one corner of the room. It was reached by three steps up and the wallboard on two sides extended up about six feet. It was open at the top. The shower was rusty and looked as though it hadn't been used in a year and the water just splashed on the floor and went down a drain. The toilet wouldn't work, as few in Siam do (there are so few of them anyway), but after several pleas at the front desk the mechanism was fixed.

A tropical fan hung down from the center of the room and provided quite a good breeze, and in addition had the beneficial effect of keeping mosquitoes away. Although the room and an adjoining porch were screened, there's no way of keeping out the mosquitoes. I used my aerosol bomb but it was outclassed and outmaneuvered. Riverboat whistles could be heard day and night and that's one noise I like.

✦ ✦ ✦

Lizards. There was a very nice bar on the main floor and the dining room was open on all sides, right along the river. The food was quite okey. There were always many scores of small green lizards around and it was amazing how those lizards hung to the ceiling of the dining room while grabbing for mosquitoes and other insects. I always expected one to drop into my soup but apparently they never fall off. I took a keen liking to lizards, the kind that you find everywhere, including your

hotel rooms, in the tropics. They serve useful purposes, although I must say they have been losing the battle against insects in Bangkok. If you don't like lizards, better stay away from Bangkok. On the other hand you can get to like them very much.

Bangkok is a strange mixture of the beautiful and the ugly. As a city it is in about the worst state of maintenance of any capital I've ever been in and that includes Asuncion, Paraguay, which had held the medal until Bangkok. Yet the 309 Buddhist temples in the city are just about the most fascinating things I've ever seen. They are beautiful beyond description. I'll tell you about them later.

✦ ✦ ✦

Hairless Dogs. In contrast to the magnificence of the temples are the "hairless dogs" which are found everywhere. I had heard of them but never realized what the description meant. The dogs are homeless curs, mangy and dirty and they lose their hair because of disease. Many have bad-looking sores. It is against the Buddhist religion to kill any living thing needlessly so the pitiful creatures roam the streets and die in the streets and nobody would think of lifting a finger even to remove the bodies. They get into fights among themselves, some of them are lame, others just drag around trying to find food to live on. The western mind can't fathom the Siamese attitude toward these dog packs.

Siam, or Thailand as the country is officially called now, has about 18,000,000 population, and of this total about 3,000,000 are Chinese. Americans number about 650, British about 1,500, and other Europeans about a thousand. Quite a few of these are Scandinavians. There is a king, who is kept far away in Switzerland, and there is usually a lot of conspiring going on within the government. Corruption seems to be taken for granted. A small group rules at the top and the remainder of the population gets along on the bare subsistence level. There is plenty of food,

actually, and in this respect nobody goes hungry. Rice, vegetables, fruits, are available in abundance and cheap in price.

✦ ✦ ✦

Lepers and Smells. Lepers are permitted to roam at large and, shunned socially as they are, they have to beg on the streets. This doesn't tend to build up your appetite for a good steak dinner.

A friend of mine there had recently been to a funeral of a native and he told me about some of the intriguing customs of the Siamese. They don't go in for embalming. If you have no money, you'll get cremated, right away, but the better off you are financially, the longer you wait before you're turned into dust. The body is kept at home for some days and then, if the family can afford it, the body rests in a temple for as much as a month or two. My friend had been to the home some days after the death of his acquaintance and he said he had to stay outside because of the terrific odor. Combine tropical heat with the absence of embalming, add a week or two, and brother, you've got something worth smelling about.

Still and all, the incredible kingdom of Siam is one of the most colorful and interesting places on this tired old globe.

 (Continued from opposite page 3)

been developed by North American Aviation. It will be known as the Sabre 45.

All passenger seats for the Convair 340 will be built according to Convair designs by Hardman Tool & Engineering Co. of West Los Angeles. Production will start this autumn.

Orders grounding Convair PB4Y-2 Privateers in Alaska have been lifted. USAF planes of the Alaska Air Command are also being returned to duty after inspections.

Hydraulic servo-mechanisms and their actuating controls can be connected in a new way by a method developed for missile applications by A1-Fin Division of Fairchild Engine and Airplane Corp. Unit is a compact housing containing the connecting lines and the actuating pistons, with the actuating cylinders being an integral part of the unit.

Automatic landing approach simulator for the F-89 Scorpion has been developed by Northrop engineers. Unit consists of a platform model plane pivoted to provide pitch and roll on a conical pedestal which rotates on its base to provide yaw. As the trainer is flown through an approach procedure, its course is traced on a ground glass.

Three Boeing C-97's were operated more than 300 hours each in August, a new record, by the Military Air Transport Service. Pan American World Airways held the previous mark for that type plane with 291 hours in one month on a Stratocruiser.

Bell X-5 maintenance at Edwards AFB is now being handled by Pacific Airmotive Corp., which is offering a complete maintenance service to companies conducting military experimental projects at the desert base.

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AIRLINES

K. R. Ferguson, former vice president-operations and engineering of Northwest Airlines, has been named head of the air transport division of the Office of Civil Aviation Mobilization, under D. W. Rentzel, Under Secretary of Commerce. He replaces George Gardner, president of Northeast Airlines, who was serving on a temporary basis.

United Airlines on September 25 named J. A. Herlihy, formerly vice president-operations, as vice president-engineering and maintenance. D. R. Petty, 21 year veteran of UAL's flight staff, becomes vice president-flight operations. D. R. Magarrell, formerly vice president-passenger service becomes vice president-transportation services, taking over responsibility for all ground service operations as well as in-flight passenger service.

American Airlines' now has over 3,000 workers at Tulsa maintenance and overhaul bases, highest level in its history, and 300 more are to be added.

Permanent panel to handle wage cases involving airlines and railroads is being set up by Economic Stabilizer Eric Johnston.

U. S. airline pilots operating outside the U. S. will be allowed by CAB to use a more liberal method of computing maximum monthly flight time. New regulation is for experimental six-month period. Under existing rules a pilot can't fly in more than one type of crew combination for a single flight without restricting his total monthly flight time to 100 hrs. Actually pilots flying with a crew including two pilots and an additional crew member may fly as much as 120 hrs. Crews including three or more pilots are under no specific limitation. New rule provides that a pilot may fly in another type of crew combination without additional flight time limits if his time in this duty doesn't exceed 20 hrs. in the more restrictive of the types.

World cargo record is claimed by Avianca, Colombian national airline, which carried 61,532,160 lbs. of revenue cargo in six months ended June 30. Company says it hasn't been surpassed on a volume basis by any scheduled or non-scheduled air carrier in the world since December, 1949. Ton-mile figure for the six months was 8,380,220, relatively low because of short-haul nature of Avianca's cargo operations (average system haul of 273 miles).

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CIVIL AERONAUTICS BOARD

Final mail rates for "Big Four" airlines, proposed in a show cause order by CAB last month, have been made effective by the Board. For past periods ranging from 1947 through 1950, rates are equivalent to 63¢ per ton-mile. From Jan. 1, 1951, new subsidy-free 45¢ ton-mile rate applies. In setting rates, Board closed its investigation of the finances, routes and operation of the "Big Four" which was instituted Feb. 25, 1949.

Domestic scheduled airlines now on temporary mail rates face cuts to prevent necessity for recapture of over-payments, under new CAB policy. Board will design temporary rates to provide only amounts deemed necessary for operations prior to establishment of final rates. In most cases, CAB says, this can be attained by providing the amount of mail pay equivalent to the break-even need; that is, the excess of operating expenses over non-mail revenues. Under old policy, temporary rates were fixed to approximate estimated final mail requirements.

CAB took steps to permit U. S. airline members of the International Air Transport Association to take part in IATA agreements on rates charged by air carriers for transporting mails of foreign countries. Board directed carriers and Postmaster General to show cause why a condition attached to Board approval of basic IATA agreement, CAB No. 1175, which now prohibits such participation by U. S. lines, should not be changed to permit participation when not inconsistent with the position of the Postmaster General.

Authority to provide flag stop service to intermediate points on its local service routes has been awarded Piedmont Aviation by CAB. Estimated to eliminate about 204 unnecessary landings annually, award requires stops only when traffic is available at or destined to intermediates.

CAB exemption which permits Alaskan pilot-own-

ers to engage in limited air carrier operations has been extended by the Board an additional five years, until Dec. 31, 1956. Previously, the exemption has been on a year-to-year basis. Board said five-year extension is granted to permit better planning and longer range operations for the pilot-owners, a group consisting of owners of aircraft having a certificated capacity of no more than four passengers.

Three-year certificate for operations between Pago Pago, American Samoa, and Apia, British Samoa, has been recommended for Lawrence M. Coleman, d/b/a Samoan Airlines by Examiner Richard A. Walsh.

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MILITARY

Air Force proposes to shift three of its planned bases to new sites. USAF has asked Congress for authority to build multi-million dollar projects at McGuire AFB, N. J., Travis AFB, Calif., and Sioux City AFB, Iowa. McGuire would replace Friendship International Airport, Baltimore, as the Atlantic terminal for the Military Air Transport Service; Travis would replace Hammer AFB in Fresno, Calif., as a bomber base; and Sioux City would substitute for Offutt AFB in Omaha as the home of an all-weather, fighter-interceptor wing.

USAF now has a legal charter. President Truman has signed H. R. 1726, the Air Force Organization Act, which also makes mandatory three commands which already exist: the Air Defense Command, Strategic Air Command and Tactical Air Command.

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CONGRESS

House-Senate conferees will have to decide whether air mail rates will be hiked two cents. Senate-approved bill would jump the cost of an air mail letter to eight cents while the House left the present six cent rate alone in its version.

U. S. would have power to prosecute for certain crimes committed aboard U. S. carriers flying over the high seas under a bill (S. 2149) introduced by Sen. Pat McCarran (D., Nev.).

Congressional investigations may be started on the noise and safety problems resulting from aircraft flying low over populated areas. Rep. T. Vincent Quinn (D., N. Y.) and Rep. James J. Delaney (D., N. Y.) have introduced H. R.'s 427 and 425, respectively, both of which call for probes in the LaGuardia-New York International Airport area. The two resolutions, however, are worded to cover an over-all investigation of low flying near airports anywhere in the U. S.

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LABOR

Capital Airlines and Air Line Pilots Association have signed a new contract effective Oct. 1 with all pay provisions retroactive to Jan. 1. Under the pact, Capital's pilots will receive higher base pay, increased gross weight pay, 1 cent a mile for the first 17,000 miles a month flown by first pilots, 2 cents for each mile between 17,000 and 22,000 and 3 cents for all above 22.000. Co-pilots, besides getting increased monthly minimum guarantees, will receive half the mileage pay of first pilots. About 470 flying personnel are affected.

UAW-CIO has walked out at Carboloy Department, General Electric Co., in Detroit over layoff of 200 workers because the division is transferring some of its operations to Edmore, Mich. Carboloy is the world's largest producer of superhard tungsten carbide metals.

New contract for one year has been signed by The Flying Tiger Line and the International Association of Machinists-AFL. Pact calls for an 8 cent an hour hike, more vacation and sick leave time and a dues check off. A wage reopener after six months is included in the contract's provisions.

WSB approval has been asked by Piasecki Helicopter Corp. for a 7% wage hike for hourly workers and a 5% boost for salaried employes. The company also wants to tie wages to the cost of living index, with a review of wage scales set every six months.

Some 18,000 IAM-AFL members at the Boeing-Seattle plant have been approved for wage hikes of 3 to 13 cents an hour by WSB. New rates retroactive to May 22, range from $1.13 to $2.35 an hour.

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CIVIL

New CAA policy will ban certificates of waiver for air shows, including acrobatics not under direct radio control, delayed parachute jumping, dog fighting, "crazy" flying, intentional aircraft crashes and similar hazardous types of flights. Waivers of air traffic rules, which would normally prevent such flights, will be issued "only when it is shown that such activities will contribute directly to the advancement of, and public confidence in aviation."

CAB has amended Civil Air Regulations to permit primary flying schools to choose the regular 35 hrs. flying time or 30 hrs. flight time and additional specialized instruction in their curriculum for private pilots. Amendment was based on experience gained during 1950 experimental period, but CAA Administrator advised CAB that at least 30 hrs. flight time in airplanes is required for proficiency. Specialized instruction can include time in synthetic trainers or as observer trainees.

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FINANCIAL

Delta Air Lines will pay a 25c dividend Oct. 17 to stockholders of record Oct. 1.

Western Air Lines has filed a registration statement with the SEC covering 25,000 shares of $1 per capital stock under option at $9.375 a share since December, 1946, to Terrell C. Drinkwater, company president and director. The registration permits him to exercise his option. WAL stock is selling at about $14 a share.

McDonnell Aircraft Corp. netted $3,291,262, or $4.82 a share, on sales of $66,623,014 for the year ended June 30 compared with a net of $2,815,219, or $4.13 a share, on sales of $38,688,383 for the same period of 1950. Backlog is now $278,636,137, highest in McDonnell's history.

Training FOR Tactical Defense

GUIDED MISSILES have become one of the major military elements in the over-all tactical defense picture.

Troops of the U. S. Army are being trained in the handling and application of these ground-to-air missiles, designed and produced specifically for tactical training purposes by Fairchild.

This program, forming the basis for future use of missiles requires specialized training on these specialized weapons.

Fairchild experts and equipment are playing their part in this basic tactical missile training program for the use of this effective defense weapon of the future

ENGINE AND AIRPLANE CORPORATION

FAIRCHILD

Guided Missiles Division

FARMINGDALE, N. Y.

Fairchild Aircraft Division, Hagerstown, Md.
Fairchild Engine, and Stratos Divisions, Farmingdale, N. Y.

"GIVE 'EM THE PERSONAL TOUCH"

O'CONNOR AIRCRAFT COMPANY, Albany (N. Y.) Airport, services Colonial Air Lines and offers executive and personal flyers every facility for fast, courteous and dependable service. Head of this operation, Charles P. (Chuck) O'Connor (below), is widely known to flyers from all parts of the country. He has been in aviation since the "wood-and-wire" airplane days and is the oldest of the flying O'Connor family (five brothers and two sons). 'Chuck' says: "I believe in personal service and when I sell something, it must be a product I believe in myself. That's why I've used, recommended and sold Texaco for years."

...and sell 'em nothing but the best — TEXACO."

You can depend upon an experienced and successful airport operator like 'Chuck' O'Connor to give you the straight word on what builds business: complete facilities, personal service, and a reputation for handling nothing but topflight products like Texaco.

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Build your airport business around your own good service and Texaco quality. A Texaco Aviation Representative will gladly help you make the proper set-up. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, *Aviation Division,* 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels

FOR THE AVIATION INDUSTRY

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. See newspaper for time and station.

American Aviation

NEWSLETTER

Entered as Second Class Matter October 8, 1951 Vol. 15 No. 19

Air Force is to be expanded to about 140 wings, the Joint Chiefs of Staff have decided. Major portion of build-up beyond 95 wings will be in tactical aviation, a plan that doesn't make AF completely happy.

AF had asked JCS okay for 163 wings, including 138 combat and 25 troop carrier. Accent would have been on strategic air power. Compromise came about because of Army insistence on building tactical air.

Build-up will start immediately if House goes along with additional $5 billion voted in Senate version of fiscal 1952 defense appropriation bill. Over $3.5 billion will go for AF expansion, $1 billion to Navy air, remainder to Army.

However, indications are that AF will push later for 163 wings. It believes one-way bombing of U. S. targets is now possible, has revised its strategic concept to make aircraft plants its top strategic bombing priority. Hence, it wants more strategic air power.

Limited Navy air expansion is also expected, although large part of additional 1952 money will probably go for modernization of existing Naval air force.

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Mobilizer Charles E. Wilson's third quarterly report to the President indicates plane output now is double what it was a year ago, with schedules expected to rise to four times the present rate in the next two years.

ODM's head indicated actual delivery figures are misleading in determining production lags, citing one plant which was to have delivered 36 planes by mid-September but only turned over 14. Actual figures, said Wilson, showed that 71 of 81 destined to be fully assembled had reached that stage.

Bottlenecks remain specialized machine tools, skilled engineers, designers and machinists. Production lags, he said, are generally not caused by shortages of basic raw materials but rather by "complex processes of fabrication and assembly."

Tooling up stage is virtually over for many defense manufacturers, but many of the more complex weapons like heavy aircraft will require several more months to finish tooling up.

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Aircraft production is headed for another drop as a result of a forthcoming cut in aluminum allotments. Government officials are trying to determine whether to reduce aluminum allocations to civil users alone or to the Defense Department as well.

If only civil production is cut, many military components for which allocations are handled by NPA's Aircraft Division will fall behind schedule. If the cut is across the board, aluminum allocations to the plane builders will face the heaviest reduction, mainly because planes take most of the military allotment.

Rash of aircraft strikes is not expected to end anytime in the near future. Union contracts with prime manufacturers and suppliers will be expiring all through the fall and winter. No single signed pact will serve as a pattern until the cost of living levels off.

State sales tax troubles are facing the USAF. The state of Georgia is demanding that its 3% sales tax be paid on all Boeing B-29's reconditioned and all B-47's built at the new Lockheed Marietta plant. The state's revenue commission told Lockheed it must pay the levy on equipment purchased for construction and rehabilitation of the bombers. Lockheed turned the problem over to the USAF's legal staff in Washington.

Significance: If the Georgia ruling is upheld, it could have nationwide repercussions. About 29 states have sales tax laws much like Georgia's.

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An administrative separation of the service and subsidy elements of mail pay for all domestic airlines has been made by CAB in a new policy highlighted by:

1. Establishment of seven separate groups of carriers with ton-mile service rates ranging from 45c for Group 1 to $7.26 for Group VII.
2. Announcement that in all domestic rate cases processed after Oct. 1, 1951, CAB will identify subsidy and service portions of the rates.
3. Announcement that separation for U. S. international lines will be made no later than June 30, 1952.
4. Promise of an annual report each year showing actual separation for all lines for preceding fiscal year and a projected separation for the following two fiscal years.
5. Statement that program will be geared to such legislation as may be enacted by Congress.

Groupings announced by CAB for fiscal years 1951, 1952 and 1953 together with ton-mile service rates are:

Group I—45c:	American, Eastern, TWA and United all three years, with Northwest added in 1952.
Group II—53c:	Braniff, Capital, C&S, Delta, National and Western all

three years, with Northwest dropped after 1951.

Group III—75c: Colonial, Continental, Inland, Mid-Continent and Northeast all three years; Pioneer added for 1952 and 1953 and Piedmont added for 1953.

Group IV—91c: Robinson and Southwest all three years; Pioneer dropped after 1951 and Piedmont dropped after 1952.

Group V—$1.48: All American, Bonanza, Empire, Frontier, Trans-Texas, West Coast and Wisconsin Central all three years, with Lake Central, Ozark and Southern added for 1952 and 1953.

Group VI—$2.58: Lake Central, Ozark and Southern for 1951 only; Central for 1952 and 1953.

Group VII—$7.26: Mid-West and Wiggins for all three years; Central dropped after 1951.

For entire domestic industry, CAB said total domestic mail pay in fiscal 1951 was $61,934,000, comprised of $27,369,000 in service pay and $34,565,000 in subsidy. By 1953, Board estimates total mail pay of $57 million of which only $24,134,000 will be subsidy, a drop of 30.2%. Improving operations of the carriers and not anticipated mail pay cuts will be responsible, CAB pointed out.

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With Washington conferences underway on the Douglas Aircraft-UAW strike at Long Beach, the CIO union also quit work at Wright Aeronautical Corp. engine plants at Wood Ridge and Garfield, N. J. Nearly 10,000 went out and the plants shut down completely.

Pratt & Whitney Aircraft, meanwhile, placed 1,200 of its East Hartford workers on a 2½ day work week as a result of the continued strike of 1,900 IAM-AFL workers at Southington, Conn., and shortages of parts caused by already settled walkouts at Alcoa in Cleveland and Ex-Cell-O Corp. in Detroit.

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Machine tool selection by USAF contractors at Marietta, Ga., and Omaha are paying off. During the first two weeks of screening, 500 contractors picked out 2,425 machines.

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Cost of the Korean war to the USAF during its first 13 months ran to $1,220,000,000. During that period the entire Defense Department spent $7,493,000,000.

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MANUFACTURING

Machine tool manufacturers whose production is for defense plants are now eligible for government guaranteed V loans for working capital and to finance expansion. Previous plan to advance 30% of amount of U. S. "pool" orders has proved inadequate in many cases. Under new set-up, tool makers need not have government orders to obtain the V loans through the Federal Reserve System. Holders of "pool" orders, however, will still be able to get the 30% advances.

Aircraft and automotive stand line of Claybourne Manufacturing Co., Chicago, has been purchased by Cleveland Pneumatic Tool Co. Acquisition covers patent and manufacturing rights, machinery, tools and inventories.

Air Force's Manufacturing Methods Pilot Plant at Adrian, Mich., is to be operated by Bohn Aluminum and Brass Corp., Detroit. The facility, which was operated by Bohn during the war, is used for experimental work on aluminum forgings and extrusions for aircraft. Plans are also underway to use some of the large presses for forgings production. AF ended contract with Reynolds Metals Co., former operator, after Reynolds was unable to agree on a contract with United Auto Workers-CIO. Plant had been shut down 11 weeks by UAW strike, but men returned after Reynolds contract was terminated.

Major subcontract has been awarded Allis-Chalmers Manufacturing Co. by Pratt & Whitney Aircraft Division for work on P&W T-34 turboprop engines. Allis-Chalmers will perform about 90% of manufacturing operations on T-34's for a number of military prototype aircraft and will assemble the engines for shipment to P&W East Hartford plant for testing.

Money for housing in defense plant areas has been asked by Congress by President Truman. He requested $101,840,000 for construction of temporary housing and medical facilities, water and sewer systems, streets and roads and refuse disposal plants where critical housing shortages exist as result of construction of new defense plants. Money will be used primarily for loans and grants to communities.

New General Electric Co. division, the Defense Products Division, will incorporate the Aircraft Gas Turbine Department at Lockland, Ohio, and the Aeronautic and Ordnance Systems Department at Schenectady.

Five million dollars in additions to its Warren, Ohio, plant is planned by American Welding and Manufacturing Co. to provide for an increase in plane engine parts production. About 20,000 square feet will be ready in January.

Sterling Electric Motors Inc., Los Angeles, is building a $1 million plant at Van Wert, O., to make aircraft precision gears.

Ft. Worth division of Consolidated Vultee Aircraft Corp. has passed its World War 11 employment

peak of 30,609. About 16% of all employes are women, against 38% during the war. Total Convair employment at Ft Worth and two San Diego divisions is now about 50,000.

Parts for Martin planes will be produced by Taylorcraft, Inc., which also has subcontract work from Bell Aircraft Corp. and General Development Corp., Elkton, Md. Taylorcraft has a prime USAF contract to make portable maintenance shelters.

Eleven members of Society of British Aircraft Constructors are touring the U. S. aircraft industry. They are visiting every major airframe and engine manufacturer plus Wright-Patterson AFB and Edwards AFB.

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PLANES AND EQUIPMENT

Two new version of the F4U Corsair, the AU-1 for the Navy and the F4U-7 for France under the MDAP program, are being produced by Chance Vought Aircraft. AU-1 will be powered by a single-stage Pratt & Whitney R-2800-83WA engine and the F4U-7 by an R-2800-18W two-stage engine. Early F4U used two-stage R-2800-32's.

New additive for aircraft engine fuels designed to increase the foul-free life of spark plugs has been developed by Shell Oil Co. Flight tests prove it effective but final quantitative results are still several months away.

Council for C-46 Engineering has been established in Washington by owners of 70 Curtiss-Wright C-46's. The group will oppose changes planned by CAB to restrict the gross takeoff weight of the planes. CAB's hearings on the change has been postponed to October 8 so that the group's arguments may be heard. Council maintains proposed reduction would reduce C-46 payloads by 35% and eliminate its use as a low cost plane.

Skyray has been approved by the Munitions Board as the designation for the Douglas F4D-1 jet interceptor.

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AIRLINES

Colonial Airlines will study "several" merger proposals, company's board of directors decided at a special meeting. Following completion of studies, matter is to be reported back to the directors at a "very early date." Proposals weren't revealed, but a company official admitted that more than possible hook-ups with Northeast or National was involved.

Annual meeting of National Airlines' stockholders saw NAL management re-elect eight directors, with three being named by the Independent Stockholders Committee, opposition group. Management's proposal to abolish cumulative voting for directors, major issue of the proxy fight, was carried by 2-1 majority, but effect won't be felt until next annual meeting. G. T. Baker, NAL president, claimed a "clear cut victory" for management, but committee said it will challenge "conduct" of the annual meeting and will take issue of cumulative voting to court. Directors elected from committee's slate were William K. Jacobs Jr., head of the opposition, who has been a NAL director but was not proposed for re-election by management; Robert J. Maroney, financial consultant; Farwell W. Perry, president of Western Newspaper Union.

John A. Collings, TWA vice president-operations, has been elected executive vice president of the company. He will also continue to handle operations. Two new vice presidents are David W. Harris and Gordon Gilmore, elected v.p.'s of industrial relations and public relations, respectively.

CAA met with representatives of Air Line Pilots Association and presidents of several airlines in an attempt to draw up a realistic program for insuring maintenance of high safety standards in airline operations.

Northwest Airlines' 12 remaining Martin 2-0-2's are to be used in domestic military airlift through the military bureau of Air Transport Association. A few have already been used, and have been flown by Transocean Air Lines' pilots, an ATA spokesman said. Seating capacity of planes is being increased to 44.

Atlas Corp. and Northeast Airlines asked Securities and Exchange Commission for exemption order permitting NEA to buy four Convair 340's at $535,000 each plus spares costing $681,550. Unless exemption is forthcoming, purchase is prohibited by Investment Company Act because Atlas has controlling interest of both NEA and Consolidated Vultee Aircraft Corp. CAB has already approved the purchase.

Slick Airways was scheduled to take delivery on its second DC-6A last week and plans to have it in service shortly. Company will increase New York-Los Angeles cargo service from three weekly to daily.

Aristeo Cerqueira Leite, president and founder of Brazilian Air Line Pilots Association and a Panair do Brasil pilot, is in U. S. for 90 days under the exchange of persons program. Brazilian ALPA was founded in 1945 and has 1,500 members.

New board chairman of Philippine Air Lines is Defense Secretary Ramon Magsaysay. New PAL directors representing Philippine government (which owns 52% of stock) are Labor Secretary Jose Figueras, Health Undersecretary Regino Padua, and Ludovico Mapa.

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CIVIL AERONAUTICS BOARD

Legislation authorizing CAB to impose civil penalties for economic violations has been requested of Congress by the Board. Purpose, CAB said, is to give it an adequate and speedy method of treating economic violations which do not warrant criminal prosecution and that should be stopped immediately without necessity for lengthy enforcement proceedings. Fines, which could be compromised by Board, would be $1,000 for each violation.

Temporary subsidy-free mail service rate of 53¢ per ton-mile for National Airlines has been proposed by CAB. Retroactive to July 1, 1951, rate would mean a cutback from approximately $2 per ton-mile currently received by National under a sliding-scale formula. It marks first time Board has proposed putting any carrier other than the "Big Four" on a mail service rate.

Approval of proposed acquisition of Mid-West Airlines by the Purdue Research Foundation has

been recommended by CAB Examiner James S. Keith. Mid-West's local service certificate expired last June but the line has applied to CAB for renewal. Purdue plans to convert the line from single-engined to twin-engined operations if acquisition and renewal applications are approved by CAB.

New front for dispute between Pan American and W. R. Grace & Co. over Panagra management has been opened by CAB in investigation known as "The Panagra Management Agreement Proceeding." It was served from the New York-Balboa Through Service Proceeding in which Pan Am and Grace are locked in dispute over which course Panagra should take in various interchange proposals.

Certificates of local service carriers will include new provision that their operations are "definitely local" as distinguished from trunk-line services, according to new CAB policy. Board will add the provision when it renews each certificate.

Round-trip summer excursion tariffs of Eastern, Delta and National proposing extension of excursion fares beyond Sept. 30 to Oct. 31, have been suspended by CAB because of possible diversion from standard or coach fare services. Only Eastern was a willing party to the proposed extension, with Delta and National joining as a "protective" measure but requesting CAB suspension.

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LABOR

Proposed 4% wage increase to 800 office and salaried employes and 30 members of the International Brotherhood of Electrical Workers-AFL by Ryan Aeronautical Co. will not require approval by the Wage Stabilization Board. Latest cost of living index shows the boost is within the legal 10% ceiling. UAW-CIO members have turned down the 4% hike and are demanding a blanket 25 cent jump and a union shop when their pact ends Oct. 24.

Wage Stabilization Board has approved Lockheed-IAM agreement calling for 8% or a 10c an hour boost, whichever is higher. Contract also provides certain increases in rate ranges. WSB deferred its decision on the group insurance agreement in which the company would pay part of the cost of increased benefits.

Hughes Aircraft Co., which has just opened contract negotiations with the Aircraft Industry Workers, an affiliate of the carpenters union, may have to deal with the International Association of Machinists-AFL instead. IAM has asked NLRB for a certification election.

NLRB has been asked to hold an election by 65 of 96 employes in the materiel control department of the Douglas Long Beach plant to determine whether they continue to be represented by the UAW-CIO bargaining unit. None of the 65 struck when the UAW went out.

A $10 a month pay hike has been granted by Braniff Airways to 1,000 of its office employes in the U. S. and Latin America.

FINANCIAL

Jack & Heintz, Inc., will pay a 15c dividend Nov. 1 to stockholders of record Oct. 12.

Air Associates, Inc. will pay a 15c dividend on its preferred stock and 10c on its common Oct. 15 to stockholders of record Oct. 8.

Solar Aircraft Co. will pay a 22½c dividend Nov. 15 to preferred stockholders of record Oct. 31.

Taylorcraft, Inc., is now in a sound financial condition, according to vice president Alfred B. Bennett. Recent stock issue was completely sold and all property and inventory is free of mortgages.

Northwest Airlines will pay a $1.15 dividend on its 4.6% cumulative preferred stock Nov. 1. This covers three previously deferred 28.75c quarterly dividends and the regular fourth quarter dividend. Net earnings in August were $546,287 on gross revenues of $5,018,483 compared with a net of $1,006,866 on gross revenues of $4,866,424 for August, 1950.

British Overseas Airways Corp. followed its profitable spring quarter by netting $341,600 in July. Revenue for the four months amounted to $29,400,000, a 41% jump over the same period of 1950.

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CIVIL

Procurement of airmen identity cards has been extended to Oct. 15, the second such extension.

Liaison airport man between the military and CAA's Office of Airports will be Joseph W. Johnson, special assistant to the chief of CAA's Airport Planning Division.

Testifying on S. 1940, the Senate bill which places flight training in the avocation category, Charles A. Parker, executive director, National Aviation Trades Association, declared civil pilots are badly needed and proposed that flight training be placed on a par with other useful occupations.

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AROUND THE WORLD

Britain, like the U. S., is facing shortage of skilled manpower for aircraft and machine tool industries. Ministry of Labor says shortages in tool industry are "acute" and those in aircraft are "serious."

Portuguese government will shortly disclose conditions attached to proposed sale of Transportes Aereos Portugueses. American, British and French parties are reported interested. Contracting company would have to be controlled by Portuguese interests, have a Portuguese director and employe Portuguese crews and staffs except under special circumstances, but in return it will receive special concessions from government as to fuel taxes and other matters, including subsidy. Preference will be given to bidder offering most complete network of internal routes in Portuguese territory.

Service to Australia by KLM Royal Dutch Airlines, suspended during World War II, is to be resumed under new Netherlands-Australia civil air agreement.